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The Modern Study of Classic Archæology.

SINCE Winckelmann, justly esteemed the father of classic archæology, published, now nearly 120 years ago, his "History of Ancient Art," which marked a new era in the appreciation of classic antiquity, our acquaintance with the development of art has been enlarged; almost every year has brought its discoveries, the sum of which has seriously modified the views expressed four generations ago by the worthy German antiquary. The history of this advance within the century that separates us from the enthusiastic but strangely incorrect surmises of Winckelmann is an interesting one, and has recently been ably told by M. George Perrot in the pages of the *Revue des Deux Mondes*. M. Perrot's name has long been known to the archæological world in connexion with the exploration of Asia Minor, while to those who have attended the pleasant lectures at the classic Sorbonne, his erudition is familiar.

In reviewing the late lamented Dr. Stark's "Manual of Archæology," M. Perrot has taken an opportunity to concisely tell the story of the modern study of Classic archæology, in the development of which it is interesting to feel how appreciable a share has been taken by England. But to Germany falls the greatest share of honour. With Winckelmann, a German, archæology took its rank among the sister sciences; it is in Germany that the study of archæology has been pursued with the most consistent and methodical effort. The rest of Europe has supplied the ranks with eminent archæologists, but, remarks M. Perrot, there does not exist elsewhere, as in Germany, a school of archæology fostered by a systematic attention to the necessities of the understanding of its lessons, as afforded by the numerous collections of casts that exist in the chief universities throughout Germany.

Within a comparatively short space of time our supposed acquaintance with antique history has been disturbed and corrected by the discoveries made in Egypt, Chaldæa, and Asia Minor. The cuneiform inscriptions, those speaking records of the past, after having lain buried during centuries, were at length to see the light, and in the hands of experts be deciphered and made to deliver up their secrets. All this knowledge was undreamt of by Winckelmann and the race of archæologists who immediately succeeded him. Egypt and its still mysterious civilisation, before his death, had been but partially revealed; and since Bonaparte's disastrous expedition to the banks of the Nile, what discoveries have not been made? The later school of archæologists have lived to see recently a fresh civilisation evoked from a long sleep, when but a short time since General di Cesnola and Mr. Lang revealed to the learned world the art of Cyprus. These, and many other discoveries on the mainland of Asia Minor,—in which M. Perrot himself has taken an active part,—have strangely modified the views of modern archæologists on the history of the development of art which Winckelmann had pictured, the self-wrought creation of the land which was to see the perfection of art,—Greece. As for his knowledge of Egyptian art, it was confined to the study of the debased figures of Cardinal Albani's Museum (so well known to English visitors to Rome), of which he was long the faithful curator; while to his inquiring mind that vast field of study and research, the painted vases, still remained as they had lain for so many a century, in the cities of the dead, scattered over ancient Etruria and the Campagna. To him even the great art of the sculptor, the art which he most deeply reverenced, was but imperfectly known, and his admiration was unfortunately bestowed on copies of earlier masterpieces of that great fifth century before the birth of Christ, the age of Pericles, of Phidias, of Alcamenes, and of Polycletus, and which alone appealed to him through the pages of history, whose clearest allusions could never have possessed the suggestive meaning of the smallest fragment impressed by the artist's hand. The statues of the pediment and the friezes of the Parthenon, the temple of Ægina and many other great edifices, were still in their original places under the forbidding guardianship of the Turks. Without a knowledge of the art of this period,—the zenith of Greek refinement, how was it possible for the archæologist of that day to understand the archaic or primitive art which had slowly led up to the perfection of the age of Pericles?

The real service rendered by Winckelmann was, therefore, not so much to have thrown a lasting light on our knowledge of classic antiquity as rather to have reduced it to method. The study of his precepts was further developed by Zoega and Ennis Visconti. A mass of facts was in this manner gathered and classified, and the sketch traced by Winckelmann filled in in its outlines. This methodical system of the study of classic art was soon to be put into practice when, with the commencement of this century, numerous excavations brought to light thousands of the treasures of the classic days. The Great Unknown, so little dreamt of by the prime mover of the enthusiasm, was soon to become more familiar. As M. Perrot has figuratively put it, a curtain seemed to be suddenly drawn aside, and behind the rich and brilliant scenery of the Græco-Roman civilisation glimmered faintly the real antiquity, the East,—the father of all religions, of all useful inventions, of the alphabet, and of the plastic arts.

Champollion was to open the road to the deciphering of the long-locked hieroglyphics, and the later discoveries were to show that Egyptian art, like that of every human nation, had had its infancy, its maturity, and its old age; its periods of abeyance, of decay, and of revival. Botta and Layard were to continue these discoveries under the sand which choked the site of Nineveh, and in their hands Assyrian civilisation was to tell its tale of wonders. Babylonia, Lower Chaldæa, Susia, the ruins of Persepolis, so long known but ill-studied, were, by the efforts of Porter, Texier, and Flandrin, to aid in the general fund of information that was now pouring in on a civilisation that had long preceded that of the Greeks; artists, antiquaries, travellers, searchers, and philologists mutually assisted each other in the task. Comparison of the results led to the conclusion that two great centres existed in those distant days: the older in the venerable valley of the Nile, the other probably commencing its influence in Chaldæa, but at a date far more recent than that of Menès, the first of the sovereigns of Egypt. Through the Phœnicians these two powerful centres mutually affected each other. One obscure point in this strange development has only been settled within a few years,—the direction followed, the surroundings through which had passed these two great influences before reaching the eastern and northern shores of the Mediterranean to sow the seeds of cultivation among the still barbarous tribes, the ancestors of the Greeks and the Romans.

Phœnicia has been really known only within a few years, when M. Renan brought home the curious remains he found in Syria, and which now form some of the most interesting treasures of the Louvre, and from the study of which the part played by the Phœnicians in the transmission of the great art-traditions of Egypt and Assyria to Greece, commenced to be understood. Hamilton, Fellows, and the French traveller, Texier, had thrown out, in the early part of this century, some vague hints of the Phœnician influence in the development of Greek art; but their uncertainty became confirmed when the several exploring expeditions specially sent abroad to study the question had completed their researches. And here let a word be said of the services rendered by M. Perrot, who formed so important a member of the expedition, and whose work on the archæological exploration of Asia Minor* justly received on its appearance no small attention. The Phœnician theory received a further support when, within a short time only, the discoveries of Mr. Lang and General de Cesnola in our newly-acquired colony of Cyprus showed another of the stepping-stones in the passage of the art of Egypt and Assyria to Greece.

Together with the progress of our acquaintance with the early civilisation of the East, our knowledge of classic antiquity was receiving fresh impetus. The appearance at the British Museum, in 1816, of the Parthenaic Marbles, which bear so universally the name of their

* Exploration Archæologique de la Galatie, de la Bithynie, etc., par MM. Perrot, Guillaume, et Delbet. 2 vols., folio.

sponsor, Lord Elgin, was to work a miraculous change in the opinion of the artistic world in the merits of Greek art. A new standard of beauty, almost a new type, was suddenly held up, and the artists,—foremost among whom let us not forget the name of Haydon,—came forward in unanimous worship of the marvellous acquisition of the British Museum, which showed the art of Athens in its purest development, freed from the last traces of archaism before its very perfection, to last so short a time, was to lead it to the inevitable decline, the end of which was, it is true, long in coming. Once the attention of the artistic and archæological world was turned in this direction, discovery followed on discovery. Under the skilful guidance of our own revered Cockerell, the Eginetan marbles were, in 1811, to be dragged from the ruins of the temple they had adorned, and after passing through the hands of Thorvaldsen, be one among the many gems of King Louis' collection in the Munich Glyptothek. The British Museum was to acquire the friezes of the Temple of Apollo Epikounios and the still more familiar Phigalian marbles, and which, as provincial productions, inferior as they might be to the works of the metropolis directed by the master-hands of Phidias and Alcamenes in person, were to show clearly the freedom and variety of Greek art at its noblest period, untrammelled by the tyranny of school or the deadening influence of formula.

M. Perrot has taken care to point out how invaluable were these discoveries in showing at this, the most prolific and most original period of Greek sculpture, how intimately that great art was connected with its sister, architecture. The early example of Stuart and Revett * was to be followed with fruits when Greece, after the memorable Battle of Navarino, was freed from the benumbing influence of the Turks. Each ruin was measured and drawn with religious care by enthusiastic artists, among whom more than one English name stands foremost; the French pupils of the Villa Medici even left their quiet home and the many inspiring subjects for study in Italy, to cross the Adriatic and seek at the fountain-head, if not at the source, the origin of Roman art.†

Studied with this minute care, the architecture of Greece was soon destined to have its secrets revealed. Every professional reader remembers how Penrose made clear the skilful artifice by which the architects of the Propylæa and the Parthenon added, by a slight curve in the lines which to the eye appear straight, a subtle and inexplicable beauty.‡

At the same moment, further discoveries were to be made. Hittorf, during his minute study of the ruins of Sicily, was to proclaim to the world the theory of polychromatic decoration in Greek architecture. Loud were the protests against this supposed heresy, but later discoveries have entirely shown Hittorf and his partisans to have been right.§

While in this manner the sister arts of sculpture and architecture were the object of such fruitful study, the companion art of painting properly so-called had received but small attention. Here all was conjecture, and the reputation of Polygnotus, of Zeuxis, and of Apelles was merely one of historical tradition. In the explorations at Pompeii and at Rome, numerous specimens of classic paintings—all purely wall decorations—were to be discovered, but these paintings were far from being satisfactory; they were Italian work, though from Greek models, and all, in spite of their beauty, were stamped as belonging to an art in its decline.‖ But Winckelmann, though he and his followers had seen the first Pompeian frescoes unearthed, was destined to remain unconscious of the finest period of the painter's art in Greece, and the knowledge of which we owe to the discovery of the thousands of painted vases,—ignorantly termed Etruscan by too many people,—which, within the last half-century have been brought to light. In 1831 Gerhard published his famous Report on the Vases of Vulci, and immediately this new and rich field of archæological research was crowded with reapers; and now, thanks to the labours of these toilers, the harvest of information is somewhat more exact than that possessed by the earliest seekers. We know now that these vases were made in a large number of places, at Athens, at Corinth, in the Greek colonies of Africa, in Sicily, in Italy; that the renown they enjoyed was such that the Greco-Scythians of the wild Crimea and the polite Etruscans of Italy eagerly sought their possession. The Etruscan even imitated the original Greek models, for the art of vase-painting was essentially Grecian,—an art, as remarks M. Perrot, born with the first dawn of its plastic genius, and which alone died out towards the second century before the Christian era, when that genius had ceased to be really prolific and creative.

By the study of these vases, it is certain that no incomplete idea may be formed of the contemporary state of the painter's art. Compared with the literary criticisms, these vases enable us to form some idea of the style of the great painters, of Polygnotus, of Zeuxis, of Apelles, and of Protagoras. But this side of the refined life of classic times remains yet, as probably it ever will, dark and unlighted. M. Perrot is expressing a widely-felt sentiment when he regrets the loss of all traces of the noble sister of the faithful trio. If there is, he remarks, in the shipwreck of antiquity a loss for which the cultivated find it most difficult to be consoled, it is the complete annihilation of the work of all those great painters whom the ancients did not hesitate to place on a par with the most famous of their sculptors and architects.

To the archæologists of the last century the existence of the interest contained in the innumerable objects which form the book of study of the educated classic antiquary of the present day was unknown. The very number of these objects, their power of escaping the destruction which overtook more important works, has placed in the hands of the student a fund of information; and, in many cases, fragile objects have been preserved through ages, as if to show us the forms of antique art and modes of life and thought in the past, which, without their existence, would have remained ignored by us. What sources of information have been supplied by the delicate little terra-cotta figures of which every museum in Europe possesses some copies! *

In this manner, the study of classic archæology gradually extending its field of inquiry year by year, the need for methodical arrangement was again felt; and from this necessity have sprung the numerous archæological associations which exist in every country, and at the head of which stands foremost the Roman Institute of Archæological Correspondence, founded at Rome by Bunsen, Gerhard, and the Duc de Luynes, as far back as 1827.† Wisely allowing a freely international spirit to pervade its doings, in its ranks it has counted all the more eminent scholars of Europe. Its monthly bulletin has recorded for many years past all the important discoveries made in Italy, while the pages of the Annual are occupied with the description and illustration of more abstruse problems.

Each country has, through the members of its own learned societies, additionally assisted in the work; many unknown paths have still, however, to be explored, and the students of the numerous unread inscriptions that still exist have yet to reveal to us much that remains at present unexplained. Already with Boeckh and Borghesi epigraphy showed its importance, and since their time its services have been even more clearly shown. As for figured archæology, its task, as M. Perrot remarks very truly, is still heavier; the language of form is less clear than that of words, while a further difficulty arises in the very abundance and variety of the materials, which are every day increasing in number. Order is necessary in the arrangement of these scattered facts, and this difficult task it has been the endeavour of more than one patient student to carry to a successful conclusion. When the Roman Archæological Institute was formed, now fifty years ago, the necessity for making catalogues and inventories, and determining the limits of the information which then had accumulated, was clearly felt. But to carry out this vast scheme, a man of an exceptional organisation had to be found,—a student of a more than ordinarily extended course of reading,—a *savant* whose taste the toil of the workroom would not injure,—an artist and a scholar. Everything is not to be learnt in books, as observes M. Perrot very justly. If you wish to speak with any competency, commence by studying closely the productions of the plastic arts; open with them, as it were, a friendly and familiar intercourse, cultivating in yourself the sentiment of form and the love of beauty. Without this education of the eye, the fruit of long practice, how is it possible for the student to seize the slight shades which distinguish the styles and the schools?

The first half of this century saw such a man, who seemed formed for the task by a union of qualities rarely found in one individual,—Ottfried Müller. The pupil of Niebuhr and of Boeckh, none among his contemporaries made such a powerful effort to embrace in his vast researches the whole extent of antiquity, to represent it and revive it under its various aspects. A philologist, he finds a singular charm in the most minute analysis of a science which weighs words and syllables and compares the lessons of manuscripts; a poet, in his leisure hours he appreciated keenly the charm of ancient and modern letters.

With the vast learning at his disposition, he hoped to be able to trace the outline and colour the picture, into which he was to introduce the whole history of ancient Greece, and place it under our eyes in all the indivisible unity of its artistic and literary, its social and political, existence. Death, in striking him down at the early age of forty-two, shattered this noble dream, and his work was never achieved. But during the elaboration of this immense programme, his activity did not allow him to be idle, and during the years that he held his chair at Göttingen he kept in charmed expectation his numerous listeners, while the magazines were filled with his facilely-penned studies; with his contributions to current literature alone, a Berlin publisher has recently formed a large work, in five volumes. But of all his works, his "Manual of the Archæology of Art," which appeared at Breslau in 1830, was that which was destined to render the greatest service to the study of antiquity. Translated into French, into English, and Italian, the book became an indispensable guide to all those who wished to acquire a knowledge of antique art.

To those interested in the story of Classic art, Müller's handbook, for it was in this form that he judged it most convenient to publish his work, is familiar, and once its apparent intricacies are mastered, the ease with which it can be used as a book of reference cannot be too highly praised. When the reader is desirous merely to acquire a summary notion of some point, the voluminous footnotes need not disturb him; but when he is desirous to enter more fully into the matter, the footnotes will supply him with a valuable series of reference to books and other sources of information.* Want of space forbids our following M. Perrot in his analysis of the arrangement of this work, the only fault of which lies in its having been published so many years ago.

In 1835 Müller himself saw through the press a second and revised edition of his work, but since that date how many important discoveries have there not been made in the field of inquiry in which Müller was so versed? Since those days the East has yielded up secrets unguessed by Müller, and Egypt, Phœnicia and its great Libyan colony, Chaldæa, Assyria, Asia Minor, Cyprus, and Rhodes have been explored. It was three years after Müller's death that Botta commenced to unearth the monuments of Assyrian art, and since them we all know what has been learned. Müller's ideas were conceived in the

* The Antiquities of Athens Measured and Delineated. By J. Stuart and N. Revett. London, 1761, in folio.

† In 1872 the collection thus made contained no less than sixty-one restorations, comprising 691 original drawings on double-elephant paper. The publication of the fifty-two volumes, in which these drawings are bound, was commenced under the direction of M. Charles Blanc; but only four parts have appeared. Among these the most interesting is the Restoration of the Temples of Pæstum, by Labrouste; the remaining studies will, unfortunately, from all appearance, be left unpublished for some time to come.

‡ F. C. Penrose, "An Investigation of the Principles of Athenian Architecture." London, 1851. Folio, with plates.

§ J. J. Hittorf, "Restitution du Temple d'Empédocle, ou l'Architecture Polychrome chez les Grecs." Paris, 1851. 4to., atlas folio.

‖ In the *Revue* of October 1, 1879, M. Gaston Boissier reviewed the learned work of Herr Wolfgang Helbig, on the wall-paintings of the Campagna, *Untersuchungen über die Campanischen Wandmalerei*. Leipzig, 1873.

* Among the seekers in this refined branch of antique art, M. Heuzey has particularly distinguished himself, and his works on the terra-cotta fragments and figures of the Louvre Museum are some of the most interesting of the recent additions to the science of archæology. M. Heuzey is at present publishing an illustrated catalogue of the terra-cotta figures of the French National Collection.

† This Institute, now the German Archæological Institute, celebrated in 1879 the fiftieth anniversary of its foundation, when a history of the Association was published by Herr Michaëlis in Italian and in German.

* The English translation of Müller's handbook, "Ancient Art and its Remains," is by John Leitch. The first edition was published in 1847, and a new edition in 1850.

early years of the century, and he is one of the warmest upholders of that now exploded theory that the Greek genius was of purely native origin. To him the part played by the Phœnicians was but vaguely pictured; the discoveries of Fellows, of Hamilton, and of Texier, were unknown; and while he was to die in his beloved Greece, these patient explorers were to call the attention of the learned world to the wondrous monuments of Asia Minor, the art displayed in which resembles so strikingly that of Upper Assyria.

With this fact borne in mind, excuses may be made for the deficiences that are so glaring in Müller's handbook; foremost among these, the author's misconception of the part played in the formation of Greek art by their Oriental predecessors, to whom, however, a few short and concise, but above all ill-placed, paragraphs are devoted.

The modern historian who would attempt a history of Greek art would be obliged to prelude his labours with the history and study of Oriental art. Egypt would necessarily be the point of departure, and in its historical succession Egyptian art in its various manifestations, according to their bearing on the art of Greece. To the people of the East a large share would have to be devoted to show how, as M. Perrot remarks, by the processes they invented and the forms they created they contributed to prepare the early rise of Greek art and its brilliant zenith. The field for the labours of the modern historian of art is somewhat vaster than that toiled in by Winckelmann and Müller. Our century is essentially, as our author truly remarks, a century of historical research. In the consideration of an individual or of a people, of a religion or of a philosophy, of a literature or of an art, we seek the earliest origins to the point where they disappear in uncertainty or are lost in the haze of a distant commencement.

In the history of Greek art, to reach its true origin we must push further in our research, and leave far behind the narrow limits of Greek history. Greece, which has long been in "antiquity," comes in reality late in the development of civilisation which had already run a long race of centuries. In comparison with Egypt, Chaldæa, and Phœnicia, Greece is almost modern. By its geographical position it was easily open to foreign influence, and particularly to that of those ancient Asiatic countries teeming with tradition. With the first upward movement from barbarism, the neighbouring East was to furnish Greece with models and examples by which it was greedily to profit. Thus, as remarks M. Perrot, the further the progress of the study of the past is carried, the more surely we recognise the truth of the traditions and myths which speak of the influence on Greece of Egypt, of Syria, and of Asia Minor. The student, in his research, will be struck by the fact that the Greeks borrow from their predecessors all the elements of that industry which is not yet an art, but without which art cannot be formed,—the processes of metallurgy, of ceramics, weaving, the laying of building materials, all those technical secrets which appear so simple to those who have long possessed them, but the discovery of which represents the accumulated effort of how many unknown generations? To the East, Greece owes her "alphabet of art," which she applied to the expression of her own sentiments. Hence, in Greek art, even in its highest perfection, so many traditional details, whose origin can be traced to the banks of the Nile or the Tigris, and transmitted down to our days. But it is something more than the mere adaptation of the traditions of their predecessors that the Greeks were to produce. Two or three centuries elapse, and Greek art is to become original, an art superior to all that has preceded it, one which alone merits the appellation of "Classic," being able to furnish rules susceptible of being transmitted by instruction. In what this superiority consists, and the reasons of its existence, is the task of the future historian to determine; and this inquiry can alone be satisfied by a study of the art of those people who formed the art of Greece: then that art will be understood. For, as M. Perrot concisely puts it, "beyond the obeliaks and the pyramids of Egypt, beyond the stepped towers of Chaldæa, the domes of Nineveh, the tall colonnades of Persepolis, the fortresses and tombs hewn in the flanks of the mountains of Phrygia and of Lycia, beyond the huge walls of the Syrian cities and the ravines where gape the yawning entries of their funerary grottos, beyond all this architecture, beyond all this strange colossal sculpture, stands clearly visible on the horizon the sacred rock of the Athenian Acropolis; and as we advance in this review of the past, we see it rising before us in the clear blue southern sky, with the dazzling whiteness of its marbles, the severe elegance of its porticos, and the majesty of its pediments, in which live and breathe the gods of Homer and of Phidias."

The story of Classic art has yet to be traced on, and if the exigencies of the study oblige the student to leave behind the Athens of Cimon, of Pericles, of Lycurgus, to cross the sea to Veii and to Clusium, to explore the Etruscan cemeteries and the strange lavishness of the decoration, if he at length reaches imperial Rome, with its gigantic edifices, how often in the midst of all this wealth of splendour will he not feel inclined to turn with regret to the memory of the past? The archæologist will still trace with curiosity the changes by which new peoples and new needs will influence the types created by Greece. The decadence continues to be interesting in the efforts made to remain faithful to the bygone traditions, but another influence more interesting is already shadowing forth the advent of another art, of Christian and modern art, which closes the study of the strictly Classic archæologist.

We have a quarrel with M. Perrot for the slight mention he has made of the remarkable achievements of Dr. Schliemann, and his omission altogether of any mention of Mr. Newton's labours in the field of Classic archæology, but we will not now pursue it.

CHURCH PLANNING AND CLERICAL CRITICISM.

When the revival of ecclesiology in this country took place, about a generation back, clerical critics had a flourishing time of it. The whole duty of the architect was to study the plans and arrangements of the pre-Reformation edifice, *donec templa refecerit*, until he could produce exact and orthodox copies of its arrangements, and what might pass for exact and orthodox copies of its architecture. The latter was the less easy task of the two; some of it involved not only the study of the facts of a style, but the imbibing of its spirit, and the discovering of workmen (if so it might be) who had also imbibed it, or into whom it could be instilled; and many examples of churches in the supposed true Mediæval style remain to attest how difficult was the accomplishment of success in such particulars. But the Mediæval plan and arrangement, and the Mediæval church furniture, and its names, could be more easily recovered, and in such matters the clergy, spurred on by their personal interest in a movement which promised to bring them into more conspicuous place and influence, were rather before than behind the architects, and assumed the position of teachers and reprovers of the latter. No practical question of the suitability of this or that form of building was at stake. It was simply the knowledge of ecclesiological precedent which was required; and under the hands of the clergy, who had most sedulously studied this knowledge, the church architect was compelled to do penance, unless he were one of the very few who had acquired even more learning on the subject than the clerical amateurs, or was able to persuade them that he had done so.

Less formal stress is laid by the clergy on this ecclesiological exactness now, partly because so many architects took it up for themselves, and it became so much a matter of course in many quarters that there was the less need for special protests and proselytising in the cause. At the same time, the extreme rigour of the ecclesiological party was somewhat abated of its pristine zeal, and there crept in a certain perception that the practical side of building did also affect churches as well as habitations; that it was desirable to have them properly warmed and ventilated; and that there was even something to be said in favour of contriving that the worshippers should be able to see and hear the clergy. The first point may be said, however, to have hardly got beyond theory, save in a few very exceptional instances. A church properly warmed and ventilated is certainly one of the rarest phenomena to be found. The latter point, the innocent desire on the part of lay members of the community to see, if not to hear, their spiritual pastors and masters when in the exercise of their office, took practical shape so far as to lead to a popular conviction sometimes acted upon, that long transepts were inconvenient features in a modern church, and to a very few attempts to reduce the side aisles to places of passage only, so as to interpose no piers between any of the congregation and the chancel, lectern, or pulpit. This latter bold innovation received the sanction of one or two of the chosen architects of the ecclesiological party, but the experiments which have been made in putting it into practice are not numerous. For any improvements in the warming and general comfort of churches that may have been made we are indebted not so much to architects, certainly not to clergymen, but mainly to heating engineers anxious to push their inventions. Even congregations make little or no stir on this point. People who would complain viciously if they had to sit shivering and with feet half-numb in a theatre or a concert-room, will put up with this in a church with hardly a murmur, beyond the customary remark after morning service in winter, "Dear! how cold the church was this morning:" a touching example of the elevation of moral sentiment and the triumph of spirit over matter which attendance at church induces, or, perhaps, of the tendency of mankind towards resignation to any evil recognised as general and unavoidable.

Our attention was drawn to the subject the other day, in connexion with the large and handsome parish church at Whitechapel, which was recently burned out (we do not say burned down, as the walls are nearly all standing), after only two or three years of existence. There has been, of course, some talk as to rebuilding it, in connexion with which a well-known clergyman of the Broad Church school, the new vicar of Greenwich, wrote the other day to one of the daily papers, protesting against the church being re-constructed on its old lines, on the ground that, as his personal experience enabled him to judge, it was so utterly bad acoustically that it was next to impossible for any preacher to make himself properly heard in it; the tone of his letter conveying a general inuendo against architects for building churches in which no one could hear. This was replied to by a letter from the Rector of Whitechapel, denying that there had been any formal determination to rebuild the church as before, and admitting fully that the non-acoustical qualities of the building seemed to necessitate some departure from its original model if it were rebuilt. This clergyman also wrote in a somewhat injured tone in regard to those who designed churches, observing that it was to no purpose to tell him that the acoustic qualities of the church were bad, but that he wanted architects, or others who ought to know, to tell him why they were bad,—whether it was the height, or the materials, or the shape, or what it was.

This would be a reasonable position enough if the clergy generally really wanted churches conveniently planned and good to hear in. But the fact is that the onus of this part of the matter rests with the clergy and the clerical party themselves. If those who promote the building of churches really wanted churches constructed for the practical aim of providing comfort and promoting easy hearing, they would get them. Theatrical proprietors demand these qualities, and obtain them, not always as completely as might be, but still very fairly, even in ordinary cases, and sometimes very completely. But the fact is that a practically-designed church is the very last thing that clergymen or church-building committees really want. If an architect gave his mind to such a problem, and evolved a church which he believed to be the most practically suitable for seating a congregation so that all should hear well and to be comfortable in regard to the provision of warmth and fresh air, quite independently of architectural precedent, not one clergyman in a hundred would look at it, and in all probability the architect would be scoffed at for his pains, as a "Philistine" with no proper understanding of the orthodox proprieties of church architecture. The manner in which this has come to be the case is, of course, simply this: the great move for church-building in this century was inaugurated mainly by the zeal of the modern High Church party. They gave the impulse, and they also gave to it its characteristic direction. In their view the revival of ecclesiasticism meant a revival, as far as possible, of the privileges of the clerical caste in the pre-Reformation period, and consequently of the revival of the pre-Reformation church. The

ritual significance of the building was to be emphasised; the idea of its use as a place for preaching in was discouraged. The short chancel, which practically sufficed for the celebration of the Communion during the Low Church period, was to give way to the long Mediæval chancel with stalls on either side for the clergy apart from the lay worshippers, and this separation was eventually further emphasised by the revival of the screen separating the chancel more distinctly from the church; although in all cases at first, and in most cases still, the stalls which in the Mediæval church were occupied by the clergy are now occupied merely by choristers simulating the clerical garb. The addition of the long chancel was a definite and in one sense a logical practical result of the new view (or the old view, if they prefer to look at it so) of the clerical office, which the church revival brought up; but there was also the influence of revived Mediæval sentiment, which affected the whole architecture of the churches, and led to the idea that nothing could satisfy the revived ecclesiastic feeling but the revival of the ecclesiastical building, and the general object held before the architects was to produce churches which should represent the Mediæval church in all its architectural expression and details as completely as possible. The architects were, as has been often observed, a good deal tyrannised over at first by their clerical preceptors; but in the end they learned their lesson: they found the ecclesiological party were, after all, their best patrons, were the party most eager to build churches and most ready to spend money over them, and they adapted themselves to the circumstances; so that now "a church architect" means a man who can build an effective church on the Mediæval pattern. The idea of the proper form of church thus accepted, was soon tacitly followed even by those who had no connexion with the ecclesiological movement. If a Low Church clergyman went to an architect for a church, he got a building on the model which the High Church party had set up, and which has become *pro tem.* the accepted form of church. There would be differences in the details of internal arrangement and furnishing, no doubt, according as the building was for a High or Low Church client; but both would get the same general form of church; and, indeed, the architect, in the present state of public feeling or habit of thought on the subject, would scarcely venture to propound any other, nor probably would the clergyman, to whatever section of the Church he might belong, think of proposing anything out of the way, on practical grounds. A church is a building in the Gothic style, with three aisles and a long chancel; that is the accepted opinion: and so it comes to pass that the Rector of Whitechapel, who, we believe, is what is usually called a Low Churchman, had an absolutely Mediæval church built for him, in which neither he nor his friends could make themselves heard from the pulpit without discomfort and exertion both to preachers and listeners; and then he and his friends wish to know how it is that the church should be so "dys-acoustic" (to coin a word from Greek), and why it was built so.

The latter part of the question we have answered already: the other portion of it should be put the other way. We should not ask, why should such a church be bad for hearing in, but, why should it be expected to be otherwise; and in some few cases, we might add, why should it unexpectedly turn out to be good for hearing in? For there are such cases, to our knowledge. We never were in Whitechapel parish church during service, but we knew the building: a lofty, three-aisled church, the centre aisle nearly 80 ft. to the apex of the open-timber roof, the walls internally as well as externally of brick. No such building could possibly be expected *à priori* to be good to hear in or to speak in. Two of the first conditions for a good acoustic apartment are that there should not be a superfluity of height, and that the walls should be of materials which sympathise with and reinforce sound. Brick, and other such hard substances, do the very reverse. They do not assist sound in any way, but they do reflect or echo it very sharply; consequently, instead of the voice being at all helped by the building, it is, without reinforcement, split up and confused by a number of echoes from hard surfaces at various angles. Add to this that a portion of the congregration are seated under side aisles, lower than the portion of the church from which the preacher's voice is emitted, and that all experience proves that it is very difficult to get sound to travel clearly from a more lofty into a lower and more confined space; add further, that by refusing the system employed in most other public buildings, of seating part of the audience on different levels, they are all spread out on the ground-floor over a considerable area, and that part of that area is partially shut off by stone piers which both intercept sound, and contribute further to produce confusing echoes; and that the form of open-timber roof, producing a kind of inverted trench over the building, is further calculated to lose and confuse sound. All these considerations are mere commonplaces to any one accustomed to study the acoustic properties of buildings; and no one would think of building a meeting-room, concert-room, or theatre in this way, or of these materials. But we really do not see that the architects are to blame in this, and so many similar cases. If the architect is an unprofitable servant, it is only in the Scriptural sense, that he has confined himself to doing what he was told to do. The architects may quite fairly turn round on the clergy and say,—"Reverend Sirs, you, or the most irrepressible section of your body, demand churches on the Mediæval model, as a matter of sentiment: there they are. They are not built for practical purposes, but for sentiment. If you *will* have them, you must take them with all their practical defects."

The ultimate solution of the problem, of course, depends on the judgment which the clergy and people at large ultimately arrive at, as to what they want churches for. Are they to be places for the performance of a ritual mainly, or mainly for addressing and leading a body of people? And if for the former object, is the ritual to be regarded as congregational, participated in largely by the people, or is it to be mainly clerical or priestly, witnessed only by the people? Which it ought to be we do not undertake to suggest here; we may have our own strong opinion, but we are not going to introduce theological or ritualistic discussions, of course, into these columns. We may observe, however, that if the latter, the priestly ritual, be what is wanted, then, and then only, is the strictly Mediæval form of church a practically fit type of building for the purpose. If, on the other hand, the church service is to be regarded mainly as an opportunity of addressing a number of persons collectively, then, and then only, is it necessary to regard the building in as purely practical a spirit as we employ in the case of a theatre or a lecture-room.

We desire to say that we do not ourselves go so far as this, more especially in a day when opportunities of addressing the public through the press are so multiple. Speaking generally, we are not in favour by any means of a purely utilitarian view of church-building. On the contrary, we are inclined to think that it is very desirable to preserve the idea, especially in crowded towns, that the church is the one class of large building left to us in which we may aim at effect and sentiment, at architectural beauty of interior expression, for its own sake, as a thing grateful and soothing to those especially who usually see around them only comparatively squalid buildings and murky streets. In such neighbourhoods a large church, with a fine and impressive interior, seems to afford the kind of relief to the mind suggested in the verses at the commencement of Kingsley's "Saints' Tragedy," where the child-heroine muses on the steps of the cathedral,—

> "All without is mean and small,
> All within is vast and tall;
> All without is harsh and shrill,
> All within is hush'd and still."

But it does not necessarily follow that from the Mediæval model alone can such architectural effect be obtained, or that we might not combine this with practical acoustic properties, at all events much better than the Mediæval model can usually afford. People must not, however, expect that they can get both qualities combined in a high degree. If they do they will be disappointed No building on a large scale which is absolutely good acoustically, can, it is to be feared, rise to anything very fine architecturally, not in the most impressive and monumental style of architecture. The two things seem to be incompatible. If perfection either way is wanted, it is for the clergy to say which they want. Do they want preaching-rooms, or do they want buildings for prayer and impressive celebrations, or do they want to combine both? If either of the former, they can have them if they will make up their minds which they want; if the latter, they must be content with a compromise, securing as much architectural effect with as good acoustic properties as can be devised. They are not likely to have both together in perfection; but the combination may, no doubt, be realised much more successfully than it ever has yet been.

We may perhaps return to the consideration of the subject more in detail; in the meantime, we will make one suggestion. The Institute of Architects have shown an intention of promoting the element of discussion more at their meetings; why should they not get up a discussion as to the best form of church-building for the worship of the church of the present day, inviting a few leading clergymen or church dignitaries to state their views as to what is wanted? It would need the hand of a resolute chairman to keep down any possible ebullition of *odium theologicum*, not only on the part of the clergy, but of some of the architects; but an animated and interesting discussion might be safely promised, and perhaps some useful conclusions might be arrived at which would prevent the wasting of large sums of money on buildings which some of those who use them only complain of as unsuited for their purpose.

THE HOLYROOD FLINT-GLASS WORKS.

The tourist who chances to visit the royal palace of Holyrood in his wanderings through Scotland will observe, on his way up the south back of the Canongate of Edinburgh, a congeries of chimneys and cupolas flanked by a certain bold and rather conspicuous frontage (embellished with some curious bas-reliefs), which, his guide will tell him, with an air of mystery, is the Holyrood Glass Works. Having a dislike of all manner of mysteries, and having, moreover, always had a curiosity about the manufacture of glass in all its phases, we obtained the necessary permission to visit the works, and the few remarks which follow are the result of our observations.

How a manufactory of flint glass should be established, as it has been for upwards of a century, in the immediate vicinity of the greatest historical palace in Scotland, is beyond our province to inquire. The times, in fact, are changed. Edinburgh is full of such mutations,—a brewery here, a brass-foundry there, a Free Kirk, and a public school,—such buildings now occupy the sites of the once-celebrated town mansions of the old nobility of Scotland. In the present instance, however, the proprietor (to whom our acknowledgments are due for his courtesy) does his best to support the historical character of the neighbourhood; that is to say, he has spent a deal of money in beautifying, castellating, corbelling, and so forth, the back elevations of all the property he possesses which abuts on the Queen's Park,—one of the most romantic and beautiful public parks, we need scarcely say, in this country.

The Holyrood Flint-glass Works have, therefore, a claim on our attention, and we have no doubt that some of our readers will be glad to hear even the little we have to say. Glass is proverbially a difficult subject to handle, in more than one way; and flint-glass is the most difficult part of it. All we can just now offer are a few hurried observations, and we shall begin by asking a question.

What is flint glass? That is the first question. But this involves a second. What is flint? Very few of our readers, we suspect, will be able to answer this question satisfactorily to themselves. The geologists will tell us that nodules of flint are found embedded deep in the bowels of the limestone rocks, likewise in the coralline deposits at the bottom of the sea. The mineralogists, who are always ready with profound definitions, say that it is a variety of quartz, a sort of intermediate substance between quartz and opal. The chemists, on the other hand, who, from their analytical nature, are more precise in their determination, give us this general formula of its composition: silica, lime, oxide of iron, water, carbonic acid, and sometimes traces of organic matter. We must not, however, enter upon this very wide subject. Our best plan, perhaps, is to say that flint is flint. The mass of our readers will probably recognise and remember flint as a certain hard obdurate substance, used by all the poets, since the days of Homer, as a metaphor indicating

obstinacy; and, long before the days of the Greek poets, by our own ancestors, who dwelt in caves, for implements and weapons; and finally by our own immediate progenitors, as a means of striking a spark of fire in a gun-lock,*

"In our hot youth,
When George the Third was King."

It may be added that flint is a species of Nature's glass,—somewhat obscure, no doubt, unless it be cut thin enough,—but still entitled to rank in this respect with opal and the gems. We need not, however, dwell any longer on flint, for the fact is that although flint-glass was originally made, as fine earthenware and porcelain are at this moment, from calcined and pounded flints, the modern method of manufacture simply employs various descriptions of fine siliceous sand; in other words, of flint that is pounded by Nature.

How this obdurate and opaque material came to be transformed into a beautiful and transparent, or it may be translucent, form of glass, carries us back at one tremendous leap to the graves of the Pharaohs. Egypt was always pre-eminent in the manufacture of glass, the sand of Alexandria being indispensable for the finest qualities. It retained this supremacy even during the Roman era; for it is a well-known historical fact that the Emperor Hadrian, on his visit to Egypt, was profoundly struck with the nature and extent of the manufacture; and he sent as a present to his friend the consul Servianus, one of those beautiful opalescent vases which the Roman writers mention with such unqualified admiration. The Romans themselves made both crown and flint glass, and knew how to make use of soda and lead as fluxes. We dare not, however, enter on the tempting field of archæology, nor even allude to the Venetian and Bohemian schools of art.† We shall just add here that flint-glass was first manufactured in England at Crutched Friars and in the Savoy about the year 1565. The Holyrood Works, to which we now invite the reader's attention, have been established, as we have said, over a century, and were the first, as they are certainly the largest, of their kind in Scotland.

The process of making flint-glass, like that of any other sort of glass, is simple enough theoretically, but in practice it is extremely difficult in every stage of the operation. The materials usually consist of the finest white siliceous sand; that is to say, the silicate of alumina; a strong alkali,—the bicarbonate of potash; a small quantity of the nitrate of soda; and lastly, the oxide of a metal by way of *flux*, which either consists of red lead or litharge,—*i.e.*, the red oxide or the vitrified protoxide of lead. To these ingredients are added a small per-centage of the protoxide of manganese, and also of arsenic, for the purpose of obliterating the action of iron in the sand (which is always present in more or less quantity). Of course, every manufacturer *differentiates* these quantities. Roughly speaking, flint-glass is composed of the same materials as every other glass,—certain silicates, certain alkalies, and certain metallic oxides. But we may add that it is possible so to vary or to adulterate these materials that a pot of good flint-glass may differ from a bad one something in the same degree and ratio (the comparison will, we are afraid, go no further!) that a specimen of Honduras baywood differs from a plank of fine Spanish mahogany!

In the Holyrood works the first thing we are naturally directed to after a bird's-eye glance at the singular buildings, is this raw material, which we find strewed about in great heaps on the floor of the mixing-house. The raw material we saw looked uncommonly like a heap of worthless rubbish, such as one may see emptied any day into what the Scotch call a "toom" as builders' offscourings; and is certainly not nearly so picturesque as the gravel we may see collected at the sea-beach for the purpose of adorning our garden-walks. But after the mixing comes the transformation; and in order to illustrate this, since we cannot find, in the whole range of modern manufacture, a transformation so singular, so complete, and so beautiful, we are compelled to fall back on the time-honoured comparison of the crawling caterpillar with the beautiful butterfly.

* Our readers who wish to pursue this subject should consult Mr. Evans's work on "The Flint Implements of the Drift."

† We may refer on this subject to the learned and beautifully illustrated work of the French antiquary, M. B. de Perthes. Fol. ed. Paris, 1852.

The next process, then, after admixture is what we shall term combination. After this heterogeneous material,—this mass of wretched rubbish, as one might suppose,—is properly mixed with all the necessary salts of potash, &c., and all the other ingredients, it is conveyed to the melting-house, where it is put into a pot, or rather a number of pots. But we had better explain, perhaps, what this pot signifies,—that is to say, a pot of glass.

In the centre of a large lofty, brick-built, stone-flagged, and well-ventilated melting-house, probably 140 ft. square on plan, stands a fiery furnace which roars night and day, surmounted with a cupola chimney and dome, and containing within its lurid bosom several enormous pots of a peculiar construction, made of Stourbridge fire-clay. The construction of these furnaces is a special branch of the building trade; and on some other occasion we may describe their construction. It is enough to say at present that they are so constructed as to stand the most enormous heat that it is possible by such means to produce. We have seen copper smelted at Swansea; and iron at Merthyr Tydvill; and we confess to the impression that these glass pots were more intense in their heat, until we were informed by the intelligent manager, Mr. Gilbert, that such was not the case. In point of fact, however, the heat (and glare) of the furnace is something tremendous. It is, we believe, nearly impossible to estimate the temperature of the white heat necessary to reduce this obdurate stuff to a liquid,—stiff, viscous, yet homogeneous. Even Wedgwood's pyrometer can give no really philosophical estimate of the great heat necessary to produce this liquid vitrification. But the singular thing about the process is that it is possible to overdo the heat, and actually to burn the glass, just as you might overheat an oven and burn a loaf. Indeed, it is one of the chief difficulties of the business to estimate and control the heat of the furnace. The fuel consists of good coal. But somehow all the various ingredients assist in feeding the combustion, or chemical combination, and the time required to produce this pot of liquid glass, technically termed "metal," ranges from two to three days and nights. We ought to add here that every pot of metal is not brought to maturity with invariable success. Sometimes a hitch occurs in the operations which renders the metal less workable, and sometimes spoils it altogether.

When this pot of metal is ready or "ripe," then begins the action of the "journey"-men glass-blowers. The singular and beautiful process of glass-blowing (which, thanks to the progress of our modern educational literature, is known to every schoolboy) is certainly one of the most ingenious and *dexterous* in the whole range of the useful arts. Several half-naked men, armed with long malleable iron tubes, select each an opening in the furnace, and dipping their tubes into the pot attach a definite quantum of the red hot, or rather white hot, metal; and blowing through this tube by an orifice in its upper extremity they can produce by the most surprising manipulation, actually any shape or form that is needed for the required drawing. A glass, or globe, or claret-jug, or vase, or, in short, any form of the various beautiful articles to which flint-glass may be applied, gets here its first and final form.

We made some inquiry at this stage on a subject with which we are always more or less concerned; and found to our astonishment that although glass-blowers are perhaps not the longest-lived tribe of artisans, still that their handicraft is not an abnormally unhealthy one, not nearly so much so as that of a tailor, for example, or a stonemason. Some years ago, we were informed that as a class they were notoriously intemperate in their habits; but that this feature in their character seems to have gradually disappeared as sanitary laws became better understood, we may speak to from our personal knowledge. And it is due to the British manufacturers of glass to say that they have done more to elevate the social condition of their working-men than almost any other employers of labour connected with the great staples of our national industry.

But we must hurry on. This flint-glass vase, shall we say? which has now reached its first and rudimentary stage in formative art, has next to be annealed,—"attempered," as our grandfathers used to say. Glass, we are sorry to repeat, needs "tempering," like human nature and fine steel; and many a good specimen of glass-blowing ingenuity cracks in the process, which is simply a more or less gradual reduction of the hot fragile vase to the ordinary atmospherical conditions. This is accomplished in what is termed the annealing oven; that is to say, a form of reverberatory furnace.

Hitherto we have been dealing with what we shall take leave to call the "hot" manipulators; we now come to speak of the "cold" ones,—*i.e.*, those artists who in place of using fiery furnaces and vitrified fluxes, work among cold water, emery, and putty. In this department resides the most artistic of all the processes, namely, that of glass-cutting, which is now one of the most important and highly-paid branches of art in Great Britain and the Continent, as well as the United States. The design, of course, precedes everything; and we are bound to say that we have seldom seen better designs in glass-cutting than we saw at Holyrood. After this, drawings are made on the glass (which, by the way, is first of all obscured). We now enter a long rectangular room, well lighted from the roof, in which we are almost bewildered by a congeries of lathes and wheels whirling and revolving at a great speed. All these wheels are really miniature grindstones, plentifully supplied with sand, emery, and putty-powder, and with these implements and materials the workmen engrave with astonishing rapidity on the exterior surface of the glass the requisite design. It is very like lapidary work on a large scale,—a process, in fact, of "diamond cut diamond," and the results are equally beautiful and exact. After leaving the cutting department, the flint-glass goods are carefully washed, and then removed to the packing-room, where they are carefully packed in tissue-paper, then in crates filled with straw; after which they are ready, as the signboard says, "for home use and for exportation."

We will not attempt to enter upon a catalogue of the sometimes magnificent and always beautiful articles. We have only to add that within the last five-and-twenty years no country in the world has made such progress as Great Britain in this splendid department of our national industry. Such are a few of the observations which occurred to us in connexion with the Holyrood Flint-glass Works.

CONSOLS AT PAR, AND LANDS THAT WANT HANDS.

THE attainment of par by Consols, which took place on the 3rd inst., is an event of no little interest to all those engaged in building, or in any industrial investment. The quotation of 100 to 100¼ is the highest touched by the Funds since 1853. It is only the third occurrence of such an event since our National Debt attained its present magnitude. In 1844, for the first time, Consols rose above par, and stood for a time at 101¾. The Railway Mania of 1845, almost, if not quite, unequalled in its inflation of prices and of hopes since the time of the famous Mississippi scheme of Law, closely followed. In 1852 Consols touched 102, the highest point they had ever reached. The world was then under the the influence of the golden promises of perpetual peace and brotherhood between nations, to which a sort of dream-like reality had been given by the brilliant success of the Crystal Palace of 1851. The then recent discovery of the gold-fields of California and Australia formed a powerful factor in the buoyancy of the public faith. The Russian invasion of Turkey, and the Crimean war, prevented a sequel to the fine-weather barometer-mark of 1852 such as that which occurred in 1845. Without trespassing beyond our prescribed limits, we may say that there is not, at the present moment, so unclouded a horizon as to promise an immediate era of rapidly-increasing prosperity. At the same time, the results of the late harvest,—which, whatever they have been positively, are magnificent in comparison with those of the harvest of the preceding year,—are reflected in the quotations of the Stock Exchange. Perhaps not less potent as a factor is the general absence of opportunities for investment. The prices attained by our Railway Stocks are not such as to tempt the prudent investor. London and North-Western are quoted at 157. On the 6th of November, 1879, they were 146¼, and paid 4*l.* 5*s.* 9*d.* per cent. if purchased at that price. Brighton are quoted now at 145; last November they stood at 133, paying 4*l.* 3*s.* 11*d.* at that price. Midland stand at 137¾, or 1½ higher than in 1879, when they paid 3*l.* 19*s.* on the

purchase-money. Metropolitan are only a half per cent. higher than they were a year ago. Metropolitan District are 2*l.* lower. Thus while it is difficult to obtain more than 4 per cent. by railway investment at the market price, there is no sign of such an inflation of the prices of these securities as to lead to anything like a repetition of the eagerness of 1845.

Some outlet, however, must form itself for the accumulating growth of capital if the terrible outlet of war is avoided. The *Builder* was, for a time, almost alone in the press in the anxious warning it raised against investment in foreign loans. "The foreign loans," says an able contemporary, "which absorbed so much of our wealth during the golden years of 1872-73 have utterly collapsed." No new opening for financial investments has occurred. We may point to the rapidly-increasing debt of our rural and urban authorities. No doubt, that is a safe investment so far as the lenders of the money are concerned; but we fear that, from the ratepayers' point of view, it will be found, to a great extent, to have been a wasteful and extravagant outlay. The luxury of some of our municipal authorities has attained a pitch that is little short of scandalous. The misery of the pauper, and the cruel pressure under which many of our crowded city populations yet live, if it may be called life, afford a grim contrast to municipal luxury. The point which will strike many of our readers is this: How is it that, while money is thus seeking for investment,—while we have so many idle hands in the United Kingdom,—while we have great towns in sore need of thorough drainage and disposal of the sewage, and while we have hundreds of thousands of acres of ground left untilled, or nourishing only furze and heath, dotted with a few pinasters, as along the course of the South-Western Railway for long miles of its course from London to Bournemouth,—no one arises to put these factors together into a remunerative sum? We have not only lands that want hands, but lands that would well repay well-directed labour. We have labour enough and to spare. We have city and urban refuse for which the land hungers, which is yet left to breed pestilence in the towns; and we have, which is the feature of the day, capital crying out for employment. The one thing which, some time ago, was the only deficient requisite, is now ready. How is it that a little of the superfluous capital, of which the accumulation is signified by the quotation of Consols at par, is not utilised in such a thoroughly remunerative manner as by taking, for example, the sewage of Guildford to fertilise some of the waste ground to the south of Woking? We cite but one example; hundreds may be found. But the great expanse of the tertiary sands of Hampshire and of Surrey seems to offer the most tempting field for improvement.

THE PICTURESQUE AND THE USEFUL.

Every man of taste feels a pang at any invasion of the romantic scenery of England by any of the disfiguring works of the industrial pioneer. To a very great extent, owing to geological reasons, the heaven-defying chimneys of the factory, and the smoke and flame vomiting mouths of the furnace, have been reared amid scenes that were, before the introduction of the industry of the mines, bleak and desolate. The sudden contrasts between crowded city and bleak moor, to which the attention of the traveller over such lines of railway as the Manchester and Sheffield is so often called, are of a nature that was only to be witnessed in dreams before the pathway was laid for the iron horse. But that portion of our scenery which is at once bold and rich, where the heights are wooded with timber of secular growth, and the valleys laugh with corn or rich meadow pasture, is, for the most part, at present safe from conversion into streets or brickfields.

Thus it is with a ready sympathy that the cry of distress of a resident in the lovely neighbourhood of Derwentwater Lake will be heard by many of those to whom our home Alpine scenery is dear. He writes to lament the completion of a survey for the construction of a tramway from the Honister Crag Quarries, above Borrowdale, to Braithwaite, on the Cockermouth, Keswick, and Penrith Railway. Commencing in the wild vale of Borrowdale, the line skirts the western side of Derwentwater Lake; and, descending by the lesser Cat Bel, crosses the opening of the famous vale of Newlands. The objection of the resident to this line is, that it is sought only to enrich the pockets of the promoters; and he holds that it should be resisted by all those who wish to preserve inviolate the beauty of the lake scenery.

In reply, one of the proprietors of the Honister quarries refers to their vast extent and excellence, tested by working for centuries. The facility for expediting the slates which they yield that it is now sought to provide is a small-gauge tramway, 27 in. wide, on which a small locomotive will draw a train of small wagons twice each way daily, with the exception of Sundays. And it is to be observed that this mode of communication will free the narrow winding roads, or rather lanes, that now conduct the wayfarer or the tourist along these valleys (in many of which it is only here and there that two carriages can cross) from the intolerable nuisance of the slate-carts. Twenty horses and carts are now employed; and it is in the prospect of the employment of four or five times that number for the transfer of slates that the construction of the tramway is proposed.

When the issue is fairly joined between the taste and the pocket, the latter is doomed to win, as a general rule. Without going into any nice details, we may take it that the conveyance of the slate by the proposed tramway will be effected at one-third the cost of conveyance by road. And as building *will* go on, and houses *must* be roofed, and Honister may fairly claim to be the source of the local slate supply, we cannot regard the completion of the tramway as anything but a question of time. Instead, therefore, of commencing a warfare of which the upshot is foredoomed, why do not the residents of the vicinity bend their energies to secure a picturesque, or, at all events, a not hideous, set of designs for the works? There is no reason why a tramway, *per se*, should be more ugly than a road. There is no reason why any bridges or other buildings needed for its use should not possess some architectural claims to admiration. Some of our quaint old road and river bridges are among the most picturesque features of many an English county. Who does not know the river-bridges at Maidenhead and at Chester? The fact is, that we ought to learn the true lesson conveyed by the triumphs, first of Brindley and of Telford, and then of Stephenson and his contemporaries, over the uncalculating opposition of landowners and corporations. The consent of the then Earl of Essex to the passage of the Grand Junction Canal through Cassiobury Park was not obtained without a long and costly struggle. But in truth the canal is now, in portions, a great ornament both to this and to the adjoining park, the Grove, the seat of the Earl of Clarendon. What is truly lamentable, no doubt, is the miserable squalor and unsightliness of Telford's canal bridges. And many of Stephenson's railway bridges are little better. But why should these things be so? Why should not the counsel of an architect, of sufficient eminence to give weight to his opinion, be sought by the landowner?

At but slightly increased cost, public works may be rendered ornaments, instead of disfigurements, to a neighbourhood. If there is, then, to be fighting,—and we confess to some sympathy with the invaded party,—let it take the form of an appeal to taste, rather than a flat negative to the demands of commerce. Let the Derwentwater residentiary proprietors choose a man of admitted taste, whether an architect in practice or otherwise, and make their opposition to the Bill depend, or at least make their withdrawal of opposition depend, on the satisfaction of their referee as to the architectural design, or picturesque execution, of the proposed new works. Every one will be the better for such a plan. Money will be properly spent, instead of being wasted in Parliamentary fighting. In fact, we can conceive of but little opposition to our recommendation, except on the part of those who take a natural interest in the maintenance of this kind of warfare.

The Case of Mr. Strachan.—We have received 3*s.* in postage stamps from "Benson," and must now close our list. Mr. Edward Ashworth (17, Dix's Field, Exeter), writes to say he will willingly receive any further aid that might be offered. The Committee of the Architects' Benevolent Fund would probably assist if properly applied to.

ARCHITECTURAL ASSOCIATION.

The first general meeting of this Association for session 1880–81 was held on Friday, the 5th inst., Mr. Ernest C. Lee, president, in the chair. Votes of thanks having been passed to several gentlemen for services rendered in connexion with the opening *conversazione*, upwards of fifty gentlemen were nominated for election as members, including Professor Hayter Lewis.

The President expressed the satisfaction which he felt, and which would be felt by all the members of the Association, at the fact that such a patriarch in the profession as Mr. Hayter Lewis should desire to join them. It was a great honour to them, and he therefore begged to move that Professor Lewis be at once elected, waiving the usual interval between nomination and election. This was seconded by Mr. R. C. Page, one of the honorary secretaries, and carried by acclamation.

The President then proposed the adoption of the annual report, which contained the following passages:—

"The Committee, in submitting the report of the past session, are gratified in feeling that the prosperity of the Association in its different branches continues to increase; as is testified by the successful results of the work, and the efforts of its members to develop what has now become a recognised society for the professional education of young architects.

The numerous opportunities offered for study and improvement during past years have been turned to good account by many, and, judging from the numbers who have attended the classes and fortnightly meetings, and the merit of the work, the Committee feel fully justified in stating that the Association is in a very healthy condition.

Visits to buildings of interest were made on alternate Saturday afternoons from January until the end of the session, and were well attended upon all occasions, those present evidently appreciating the opportunities of acquiring practical information and studying contemporary architecture. The thanks of the Association are due to those architects who accorded permission, and in some instances met the members and conducted the visits personally, thereby adding much to their utility and interest.

The library has been well attended, especially by the new members. Several donations have been made, notably by Mr. George Godwin, F.R.S., Mr. H. L. Florence, and others. A catalogue of additions to the library will be issued shortly.

The Committee have much pleasure in announcing that negotiations are pending by which the Association will receive on loan from the Royal Institute of British Architects a number of valuable books, many of which duplicate those already in our library.

The Council of the Royal Institute of British Architects having invited the Association to be represented on a committee engaged in preparing a general scheme for an examination for membership of the Institute, Messrs. J. D. Mathews and H. L. Florence, Past-Presidents, were chosen to fulfil those duties.

The Birmingham Branch continues to work efficiently in connexion with this Association, and has availed itself fully of all the privileges of membership.

Amongst the honours taken by members of the Association during the past year have been:—

Royal Academy.—F. Baggallay, Gold Medal; J. Ince, Medal of Merit in same competition; R. Gibson, Travelling Studentship.

Royal Institute of British Architects.—L. Stokes, Pugin Travelling Studentship; F. Hemings and M. J. Lansdell, Medals of Merit in same competition; E. Harnor, Soane Medallion; L. B. Broun, the Tite Prize; G. H. Blagrove, Prize Essay."

Mr. J. Douglass Mathews seconded the adoption of the report, referring especially to the steps which had been taken by and in the name of the Association in connexion with the Compulsory Examination Scheme. As stated in the report, Mr. Mathews and Mr. Florence were chosen by the Association to represent that body on the committee formed to consider the question under the auspices of the Institute, and from the statement made by Mr. Mathews it appeared that he and Mr. Florence, as representing the Association and the younger members of the profession generally, prepared, at the request of the committee, a scheme of what the examination should, in their opinion, be. That scheme was adopted by the committee, and afterwards by the Council of the Institute, with scarcely any alteration. Another committee had since been appointed and was now engaged in considering the best means of giving effect to the scheme of Examination, and on that committee the Association was well represented, their representatives including, besides himself and Mr. Florence, Messrs. T. H. Watson, Lacy W. Ridge, Roger Smith, and others. It was earnestly to be hoped that the Compulsory Examination, which would commence in 1882, should be a success. He and others of its promoters had long advocated the assimilation of the architectural profession in some degree to other professions dealing with the life and property of the public, by the establishment of diplomas to be granted only to those who should by examination demonstrate their fitness and competence to practise, but it was felt that they could not go

to the Legislature and ask for a diploma without first proving their earnestness by establishing such examinations as it was in their own power to do. With a view of making the Compulsory Examination as successful as possible, the Association,—which was to a far greater degree than any other society the nursery of the Institute and, indeed, of the profession at large,—would, he thought, do well to at once form classes for its more advanced members with the view of fitting them to pass the examination with credit to themselves and the Association.

The motion for the adoption of the report was then put and carried.

The balance-sheet, submitted by Mr. J. Douglass Mathews, and adopted on his motion, showed that the financial position of the Association is satisfactory, notwithstanding several heavy items of exceptional expenditure connected with the recent alteration of the premises in Conduit-street. The total receipts for the year were 655*l.* 5s. 2d., including 127*l.* 17s. 8d. balance in hand from last year, 51*l.* 13s. withdrawn from investment, and 426*l.* 6s. 6d. members' subscriptions and entrance-fees. The total expenditure was 603*l.* 11s. 4d. (including 139*l.* 10s. for rent; 106*l.* for alterations and improvements in new class-room and library, and for new furniture; and 28*l.* 9s. for law expenses in connexion with lease), leaving a balance in the hands of the treasurer of 51*l.* 13s.

The presentation of the many reports from the various classes and other agencies for carrying on the work of the Association was next proceeded with. They showed that what may be called the departmental work of the Association had been fairly well sustained during the past year, although hardly commensurable with what might be expected from so long a muster-roll of members and so many facilities as are afforded by the Association. The reading and discussion of these reports always occupies a very considerable time, and this year a discussion arose as to whether it would not be possible, in future, to print them in the Association's Brown Book, by which plan every member would have them, and they could then be "taken as read" at the first business meeting of the session, which is always the opening meeting. This suggestion was opposed by some members on the score of the extra expense which would be involved, but it was urged by others that the necessary outlay would be well expended, seeing that these reports gave detailed accounts and statistics of the work done in the various classes, and, indeed, described an integral and a very important part of the business of the Association. It was understood that this suggestion would be followed in future, but when the reading of the reports was about half-way got through, it was moved that that business be shunted for a time in order that the President might read his address. This was carried *nem. con.*

The President then delivered his inaugural address. After reviewing in detail the work of the last session (which, he said, thanks to the energy of the late President, Mr. S. Flint Clarkson, and to the indefatigable labours of the secretaries and committee, and those of the officers of the various classes, had not been retrogressive, although the number of members attending the classes was not so satisfactory as could be wished, considering that the Association numbered more than 800 members), he proceeded as follows:—On the question of prizes I have something to say. First, with reference to the too often unsatisfactory character of the drawings sent in for the open prizes, we cannot suppose (with the list of prizemen for the last year [all members of this Association] figuring in our report), that there are not enough, and to spare, of good men and true who are capable of competing and producing drawings which we should be proud to hang on our walls in exhibition. But the fact remains that they do not compete. Why is this? I think we must, however unwillingly, come to the conclusion that the prizes in themselves are not of sufficient value, and that the honour of taking the prize is too often gauged by its monetary worth, not by the students only, but also by the public. If this be the case, you will all be glad to hear that an attempt, perhaps too bold, but, for all that, a determined attempt, is, I hope, on the eve of being made to rectify this defect; and that the prize sub-committee have convened a meeting, and will submit the following report for the consideration of your committee at their next meeting. This is so important a matter that I shall take the liberty of giving it you *in extenso*:—

"*Architectural Association Prize Sub-Committee.*

At a meeting of this committee, held at the President's (Mr. E. C. Lee's) rooms, on October 19th, 1880, the members present being Messrs. Adams, Batterbury, Lee, Shuffrey, and Webb, it was unanimously decided to recommend the following suggestions for adoption and approval to the committee of the Architectural Association:—

1st. That a scheme be set on foot for raising a fund sufficient to endow a permanent annual prize, to go by the name of the 'Architectural Association Travelling Studentship.'

Taking into consideration the immense increase in the members of the Architectural Association of late years,—its importance as an educational body, and the laxity of competition for its open prizes arising, as the committee consider, from the small value of the prizes offered, the committee consider that the raising of the necessary funds to endow a Travelling Studentship would not present insuperable difficulties.

It is considered that an amount to produce annually the sum of 20*l.*,—say 400*l.* or thereabouts,—would be required, and the committee suggest that they should be empowered to take such steps as may appear to them advisable to raise this amount among the members of the Architectural Association.

In order to avoid the appearance even of competition with similar prizes offered by the Royal Academy and the Royal Institute of British Architects, it is proposed that the Studentship should be open to those members who are not more than twenty-three years of age, and further, that the election of a student be based not only on his draughtsmanship, but also on his powers of design, and that the drawings sent in should be limited in number. And the committee desire to express their opinion that the institution of such a Studentship would greatly benefit and raise the status of the Architectural Association.

2nd. That a special Prize Fund Committee be formed in connexion with the present Prize Sub-Committee, for the purpose of obtaining annual subscriptions sufficient to considerably increase the present amounts offered for open prizes, the committee fully believing that the comparative failure of the existing Prize Fund is largely owing to the want of any organised effort to raise the money required adequately to endow the medal, essay, and any other open prizes, which are from time to time set on foot."

I trust that this project will appeal to every member as one of the first importance, and that each one will subscribe in some form or other to enable it to become a reality. If we cannot get the whole of the amount this year, we shall strive to complete it in the next. It is a great work and a valuable one, and in after-years each of us will feel proud to have added his mite, and to be able to lay claim to have been one of the originators of the "Architectural Association Travelling Studentship," and to have raised the standard of the Association by giving a proper status to its prize fund. The library, in the very efficient hands of its present officers, continues to carry on its work most thoroughly, and arrangements for the extension of its usefulness are at present in negotiation with the Royal Institute of British Architects. And now I must say a few words to you concerning the Architectural Examination. You are most of you aware that the Royal Institute of British Architects propose in 1882 to make the Associateship attainable only by the passing of a Compulsory Examination, and I think you will most of you agree that it is a step in the right direction,—a step towards the architectural diploma period which we hope eventually to attain to. It will at once raise the status of the profession and the standard of education,—the social and artistic position of the architects of this country. It will, I trust, be the means eventually, though naturally by slow degrees, of eliminating those practitioners who take our name and enrol themselves under our banner simply for trade purposes. While we are legally powerless to prevent what is morally an infringement on our rights, at present there is nothing to prevent any small builder, auctioneer, or house-agent from tacking-on "Architect" to his name; nor can we, without an Act of Parliament, hope to have protection from this sort of piracy. Freedom from this, however, may come, and will, if the Compulsory Examination scheme is thoroughly carried out. We do not want to prevent people building houses,—if they are so ill advised,—without an architect; but we do object to having the profession dragged through the mire by ignorant tradesmen who have no claim or right whatever to our name. These, however, gentlemen, are higher matters than properly come within our province, though we must all, individually, feel the greatest interest in them, and strive to further the objects sought to be attained, as far as lies in the power of each one of us, as members of an association of students formed for mutual help in self-education. Let the task we set before us be to strengthen the hands of the Royal Institute of British Architects, by proving that among the younger members of our profession there is a large body of men able and willing to think and work and act together, and, who will not be afraid, when the time comes, to submit the result of their labours to the test of an examination. . . . . During the last session there has been sitting a committee, under the auspices of the Royal Institute of British Architects, on the vexed question of architectural competitions. What conclusion they have come to, and what advice they are prepared to give with regard to future procedure, we do not at present know; but we may well hope that a code of rules, based on the principle of paid limited competitions and professional adjudication, will be the result. In conclusion, gentlemen, I hope and trust that in the present session the harmony of the Association, notwithstanding its increasing ponderosity, will still be maintained; that in our social connexion we shall all be ever ready to extend a helping hand to our less successful brethren; and that in our labours together here we shall strive by all means in our power to fulfil the aspirations of our motto, and learn so to order our ways that posterity will at least allow that the architects of the nineteenth century, whatever else their shortcomings, did, to the utmost of their power, "Design with Beauty and Build in Truth."

The reading and consideration of the reports from the classes, &c., was next proceeded with, and this business having been disposed of,

Mr. Lacy W. Ridge moved a vote of thanks to the President for his address, which he characterised as extremely practical, and full of interest to the members of the Association. He urged that, in future years it would greatly facilitate the business of the opening meeting if the reports of the classes were printed in the Brown Book of the Association. The members would then have the advantage of seeing them in advance of the President's address.

Mr. Thomas Blashill, in seconding the motion, said he had been struck by the variety of subjects which the widening operations of the Association had rendered it necessary for the President to mention in his address. It was very desirable that members should join the various classes which were carried on under the auspices of the Association. With regard to the proposed Travelling Studentship, 400*l.* was a large sum to raise, and he ventured to suggest that pending the full realisation of their desires in that direction, the treasurer of the Association might, as the funds allowed, be permitted to make a grant in aid of the travelling expenses of the student who might be deemed most worthy of it, so that the proposal might take effect at once. Upon the members generally Mr. Blashill urged the importance of spending a few weeks abroad occasionally, as a useful auxiliary to home studies and travels, and he pointed out that the facilities now existing for foreign travel enabled students and others to get over a great deal of ground at a very small expense.

Mr. S. Flint Clarkson, in supporting the motion, said, with reference to the proposal to raise 400*l.* for endowing a Travelling Studentship, that he did not see why it was stipulated that that sum should be wholly contributed by the members of the Association. The Institute was not above receiving special gifts from non-members in aid of similar objects; why, then, should the Association lay down a different rule of procedure? He hoped this and other points would be well considered; for he believed that the proposed Travelling Studentship, if made sufficiently different from those already existing, would be a great success.

Mr. Riddett having said a few words, the motion was carried *nem. con.*, and Mr. Lee having briefly replied, the proceedings terminated.

THE PRINCESS'S THEATRE.

The new theatre was opened on Saturday last, the 6th, with "Hamlet," Mr. Edwin Booth, the American actor, playing the principal character. Before giving a few particulars of the new house, we are impelled to say that the newspaper representation was unsatisfactory. The newspapers, properly anxious to show kindness to a visitor from afar, have sought to say what they could in favour of Mr. Booth's performance, but the truth may be read between the lines. It was mannered and monotonous, and never once "fetched" the house. We shall be glad to see Mr. Booth in another part, and to find ourselves able to admire. There is little to mention specially in respect of the acting in the other parts, except as regards Miss Gerrard, who, as Ophelia, though somewhat weak and colour-

less at first, in the mad scene achieved a genuine and well-merited success.

The architectural scenery that has been provided for the play is the worst that has been seen on the London stage for a long while. As the tragedy is to be played but a short time, if Mr. Gooch had brought together a number of old and inharmonious canvasses, surprise would scarcely have been expressed. But that such scenes as are exhibited should have been painted for the purpose at this time of day is surprising. The Norman period having been selected, the painter had nothing to do but to go to known examples of the style to ensure something like correctness; instead of doing which, he has chosen to burlesque every detail. Such a Norman interior as that in which the interview with Ophelia takes place, with two staircases and four fearsome beasts sitting on the newels, was never seen before out of a pantomime. And this, too, on the spot where for years, under Charles Kean, the scenery was always artistically beautiful and archæologically correct. Such a scene as that to which we allude exposed night after night before an audience is a public injury.

The new theatre has been erected from the designs of Mr. C. J. Phipps, architect, Mr. Mark Manley being the builder. The other contractors engaged were Messrs. Geo. Jackson & Sons for the proscenium, box-fronts, and other ornamental plaster work; Messrs. C. Drake & Co. for concrete floors and stairs; Mr. Edward Bell for painted decorations and gilding; Mr. D. Jones for the gaswork; Messrs. Strode & Co. for the sunlight; Mr. Wharton for the stage; Messrs. Gregory & Co., Regent-street, for the upholstery; Mr. Wadman for the stalls and dress-circle seats; Messrs. Cottam & Co. for the ornamental iron gates; Messrs. Wills & Co. for the waterfall and fernery; and Messrs. Burke & Co. for the mosaic pavements. Mr. E. Nightingale was clerk of the works.

The audience to the stalls, private boxes, dress circle, and upper boxes, enter the theatre from the new frontage in Oxford-street, by a vestibule, 20 ft. wide, opening into a crush-room at the foot of the grand staircase. The audience to the pit, amphitheatre, and gallery enter the theatre from the new entrance in Winsley-street, a few doors out of Oxford-street. The Royal and stage entrances are in Castle-street. A commodious room is provided for the Royal box.

On the first tier, the balcony or dress-circle has five rows of seats to hold 140, and behind these nine private boxes. The balcony advances nearer the stage than we have ever noticed in so large a theatre.

The upper circle, or second tier, has six rows of seats, and will hold 400 persons. The pit holds about 800. The dimensions of the auditory will be seen from the following measurements:—

	Ft.	In.
Curtain line to dress-circle front	32	0
Ditto to upper circle front	39	6
Ditto to amphitheatre front	41	6
Ditto to gallery	45	0
Ditto to the back wall of the pit	61	0
Ditto to the back of the stage	40	6
Ditto to the footlights	4	0
Width of the stage and scene docks	118	0
Height of the stage to the gridiron-floor	58	0
Depth of the stage to the cellars	19	0
Height of ceiling above pit	55	0

A special feature of the arrangements is a separate transfer-staircase from the highest level of the gallery to the ground-level of the pit. So that on crowded nights the overflow from the gallery can transfer down to the pit without mingling with the persons still ascending by the main entrance staircase; also from the pit, a passage at the back affords a means of transferring to the front entrance vestibule, where access is at once obtained to the several higher tiers of the auditory.

All the entrances and staircases are fireproof, and the stage is separated from the auditory by a solid brick wall carried up above the roof. A saloon and smoking-room are provided on the level of the dress-circle; the latter extending over the entrances and facing out into Oxford-street.

The proscenium opening is 30 ft. wide and 36 ft. high, flanked on either side by three tiers of private boxes, very lofty, as the custom now is. Above, in the tympanum of the arch, is an allegorical figure subject satisfactorily painted by Mr. Ballard, representing the various arts allied to the drama. The two spandrels supporting the ceiling contain figures of "Poetry" and "Music."

The general tone of the decoration is light cream colour, deepening in colour towards the lower parts of the auditory, and the whole of the ornament is gilded. The hangings to the private boxes are of figured silk,—a deep crimson colour. The act-drop, by Mr. William Beverley, represents a tapestry curtain with the Royal Arms in the centre, and, strange to say, is very unsatisfactory.

Mr. Phipps is an experienced theatre-architect, and, as might be expected, the arrangements for seeing and hearing appear to have been well attended to; the public staircases are of the right kind, short flights and no winders, and the vestibules and approaches are capacious; but from an art point of view the new Princess's is decidedly inferior to some of his other works.

THE TEMPLE BAR MEMORIAL.

The memorial at the commencement of Fleet-street was unveiled on Monday, the 8th, by H.R.H. Prince Leopold, in the presence of an immense and not altogether friendly crowd,—unfriendly, that is, to the memorial, not to the Prince, who was received enthusiastically. We have done our best to avoid joining in the common cry against this erection. But it cannot be done; the more the structure is looked at, the more clear the fact becomes that its position is a dire mistake, and that it must inevitably be removed before long. It stands immediately opposite to the entrance to the Law Offices, and will during some hours of the day absolutely prevent carriages from setting down at that door.

Although the memorial has already been illustrated and described in various quarters, we are bound, probably, to repeat some of the particulars, though very briefly. It consists of a basement of blue Guernsey granite and pedestal of red granite, the angles being protected by four spur stones of Shap granite. In the pedestal are four panels in relief executed in bronze, that on the south side depicting an incident in the life of her Majesty the Queen, on her visit to the City after her accession. On the north side the relievo represents the Queen, with the Prince and Princess of Wales, passing through the City to St. Paul's on Thanksgiving Day, 1872. The figures and accessories are so much in relief that when they get clogged with mud it will be impossible to clean them without damage. The best thing that can be done will be to put glass over them. The tablets at the ends are much smaller. That on the east end gives a representation of the old gate, with the strange intimation above that it was erected by Sir C. Wren, and removed by Horace Jones. Why the City Architect should thus unnecessarily hand himself down to posterity as an Iconoclast it puzzles us to say. The superstructure consists of four piers, with capitals, or rather eight pilasters of Craigleith stone, with the necessary architectural accessories, and with niches between them on the north and south sides in Ancaster stone. The whole is surmounted by a small pedestal with a dragon, holding the City shield modelled by Mr. C. B. Birch, A.R.A., and cast in bronze by Mr. Moore, of Thames Ditton. The vigour and power of this part of the work deserve praise. The niche on the south side is filled with a statue in Sicilian marble of the Queen, in her state robes. In the northern niche there is a statue of the Prince of Wales in Field Marshal's uniform,—singularly unlike his Royal Highness. Both these statues are by Mr. Boehm, A.R.A. The whole height of the memorial is 31 ft. 6 in., and the width of the base of the pedestal is 5 ft. 1 in. by 7 ft. 8 in., exclusive of the spur-stones. The pilasters are filled with carved cameo panels, emblematic of Peace and War, Art and Science, together with the rose, shamrock, and thistle. There are two portrait medallions on the east and west sides of the memorial, one representing Prince Albert Victor of Wales, and the other the late Lord Mayor, Sir F. Wyatt Truscott. We should have mentioned that the frieze above the pilasters is inscribed "MDCCCLXXX. Temple Bar formerly stood here." The carving and modelling were executed by Mr. H. Mabey, with the exception that the relief facing the north was modelled by Mr. Kelsey. Messrs. John Mowlem & Co. executed the masonry, the granite work being supplied by Messrs. Alex. Macdonald, Field, & Co. As regards the work of the City Architect, we have no hesitation in saying that if the site had been unobjectionable, the memorial would have obtained praise. The rapidity with which the work has been don , considering its character, is remarkable.

Those who have seen the memorial as it now stands will have noticed that only a portion of the space intended to be devoted to the purposes of a "refuge" for persons crossing the road is curbed and paved and provided with the ornate lamp-posts at the angles. That portion of the refuge, three or four square yards in area, is on the City side of the structure. With a view, perhaps, to make the memorial as little of an obstruction as possible, the western face of the masonry has been carried up right on the very confines of the western boundary of the City, and consequently the few square yards of space required for the refuge at the western end of the monument must be taken out of the roadway of the Strand. Somehow or other, those most concerned in the erection of the memorial seem to have acted in such haste as to omit to ask and obtain beforehand the sanction of the Strand District Board of Works for permission to encroach upon their domain. Only when the monument was nearly completed was the requisite permission sought, when lo! the Strand District Board passed a resolution refusing to accede to the request, and condemning the structure as an impediment to vehicular traffic. Subsequently, a deputation, consisting of Mr. Bedford and other representatives of the Corporation, waited on the Strand authorities to endeavour to induce them to rescind their resolution, and to give their sanction to the completion of the memorial. A motion made to that effect was, however, lost by 18 votes against 12 for it. To this determined rebuff is due the present incomplete state of the memorial. The dispute affords an apt illustration of the way in which the local authorities of London can thwart each other when conflicting interests prompt them.

THE METAL SPIRE OF ROUEN CATHEDRAL.

COPPER AND IRON.

The spire of the Cathedral of Rouen is legendary. This "unluckly manufactory chimney" has served a number of writers for a long time as a butt for sarcasm and laughter. And this work of Alavoine's, who was, nevertheless, one of the architects of the column of July, had up to the present only found detractors.

The lantern had been set up, and for long years stood in an adjoining courtyard. Put into its place, this last portion of the spire has considerably modified its aspect, and the gigantic *flèche*, 150 mètres in height, has since then been more justly appreciated. To-day, the work commenced in 1827 has entered into its last phase, as our sketch shows. The nakedness of the base was most unsightly. The artist had projected to overcome this by the aid of large turrets around it, and these are found effectual. They are nearly 25 mètres in height. For a long time previously a model in timber work carefully worked out, painted lead colour, had given an idea of the importance of the intended addition.

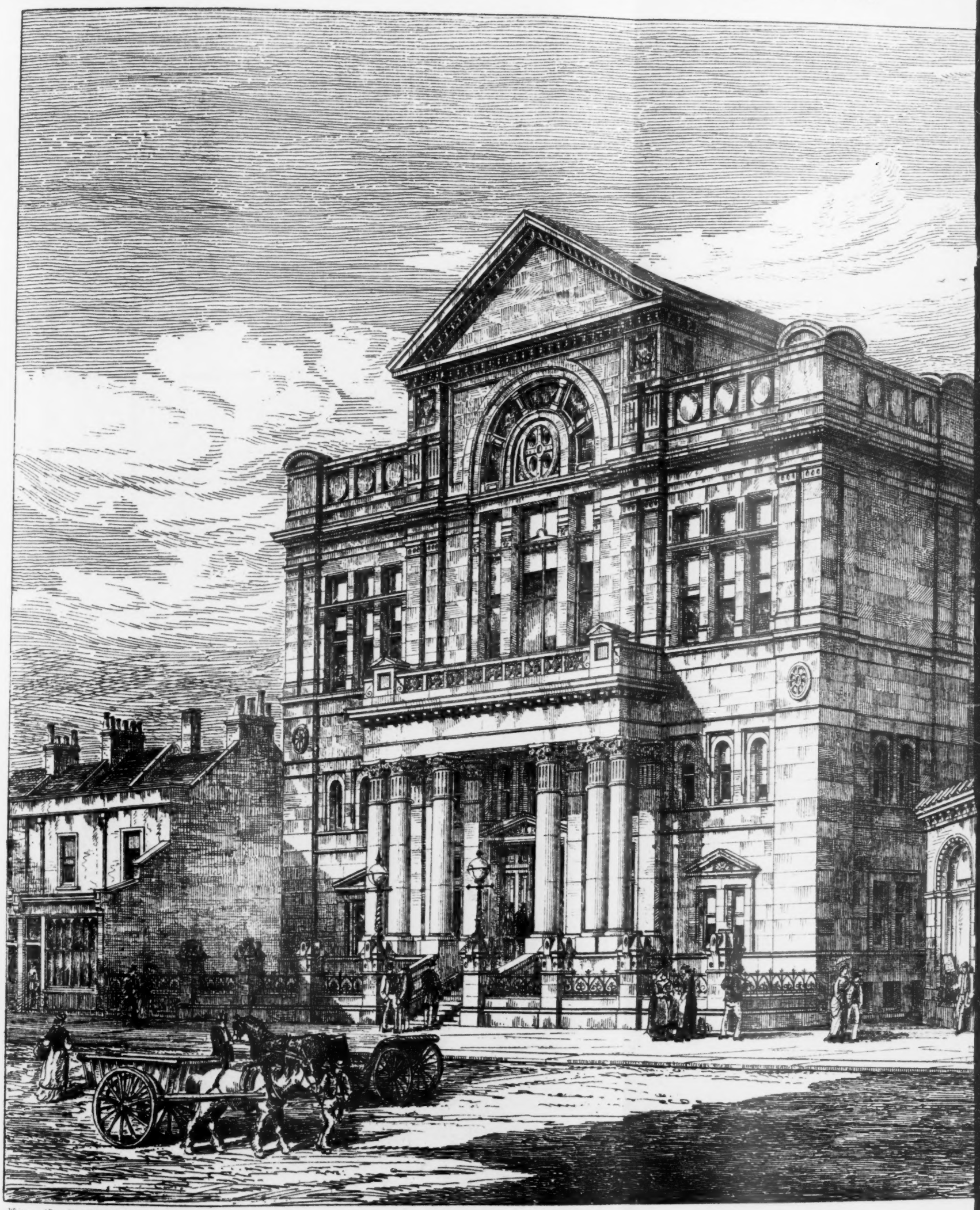
The whole of the works have been under the direction of M. Barthélemy, diocesan architect. The frame-work of the turrets, executed in iron by M. Filleul, is covered in copper *repoussé*, with ornaments modelled and framed by M. Marron. A portable scaffolding, established by M. Gambier, was transported successively to the four angles of the tower for the building of each turret. The whole of the *repoussé* work in copper is isolated from the iron by ties and rings of hardened wood. It is composed of leaves hooked to each other, and not soldered, and is the most important work of the kind that has been executed in France up to the present time.

A colossal statue of Bartholdi, which was recently to be seen at the Paris Exposition des Beaux Arts, is the only work which can at all compare with the construction of these turrets, which are of enormous dimensions, but nevertheless appear very fitting at the great height at which they are placed.

These are, in fact, the last complement of the work of Alavoine, and nothing now remains to entirely finish it but some touches of gilding, which by this time, indeed, may have been given.

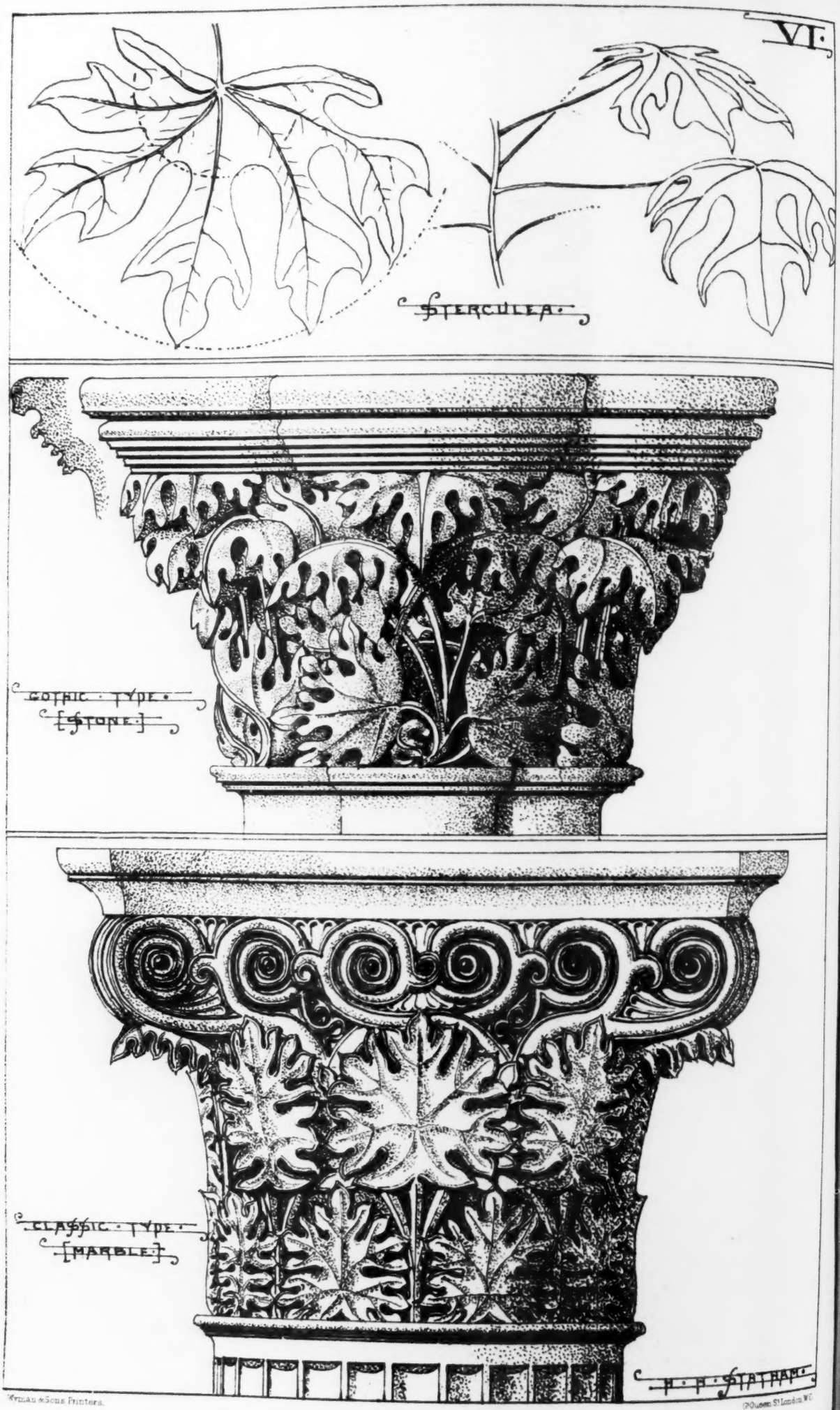
The sketch of the cathedral which we publish is taken from a roof in the Rue Grand Pont. It gives an idea of the effect of the spire as improved by its turrets, and from which the cross rises in the air to a prodigious height.

THE METAL SPIRE OF ROUEN CATHEDRAL.—FROM THE DESIGN OF THE LATE M. ALAVOINE, ARCHITECT.



Whiteman & Bass *Photo Litho* 236 High Holborn

BERMONDSEY TOWN-HALL.—Messrs. Elkington & Son, Architect



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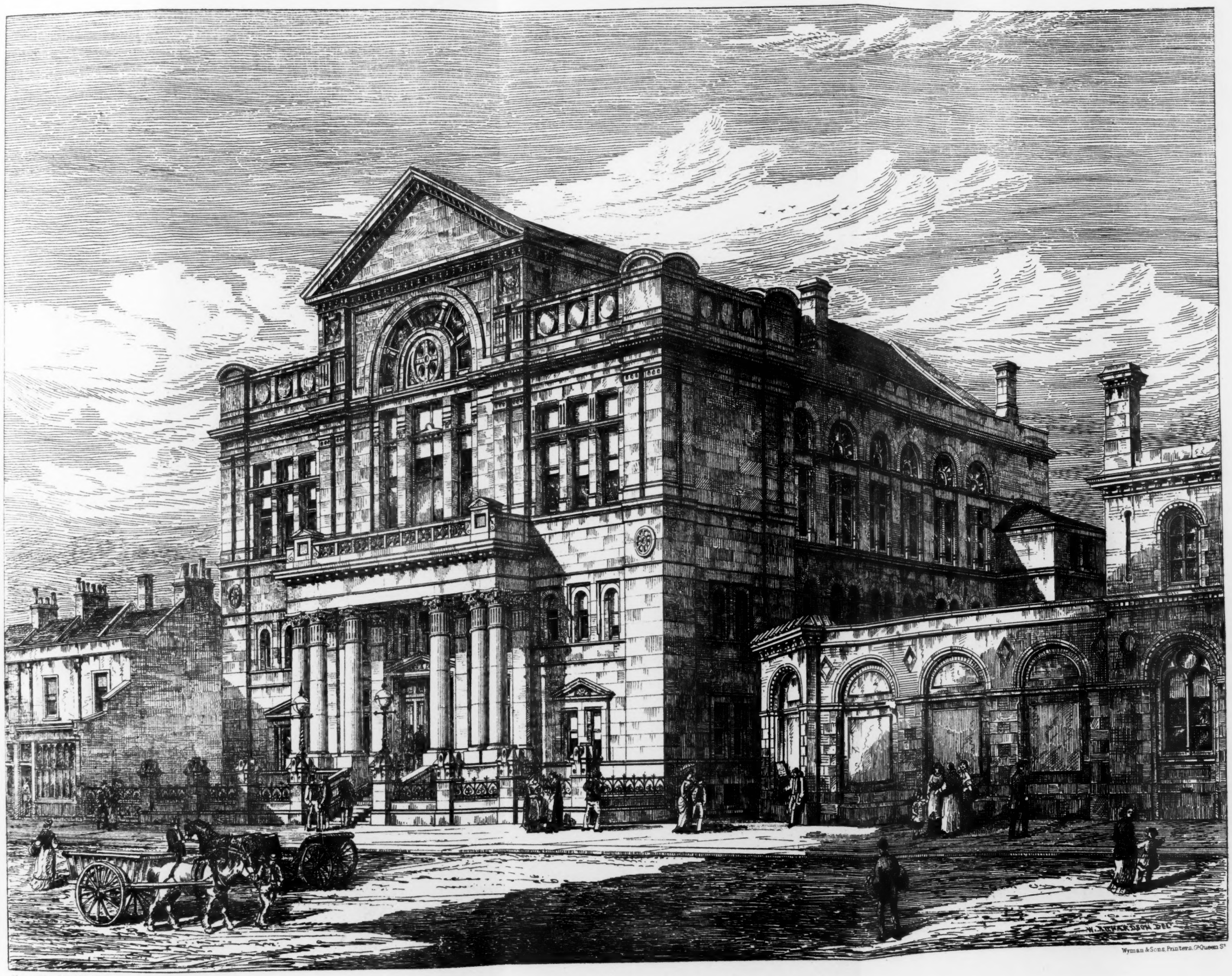
DECORATIVE SUGGESTIONS FROM NATURAL FORMS. — No. 6.



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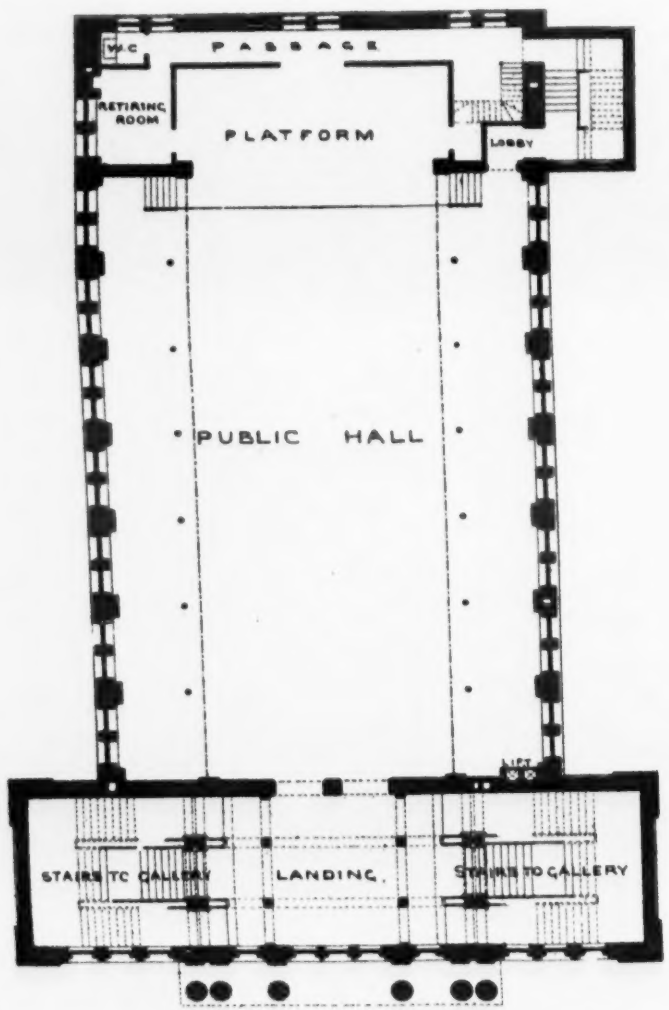
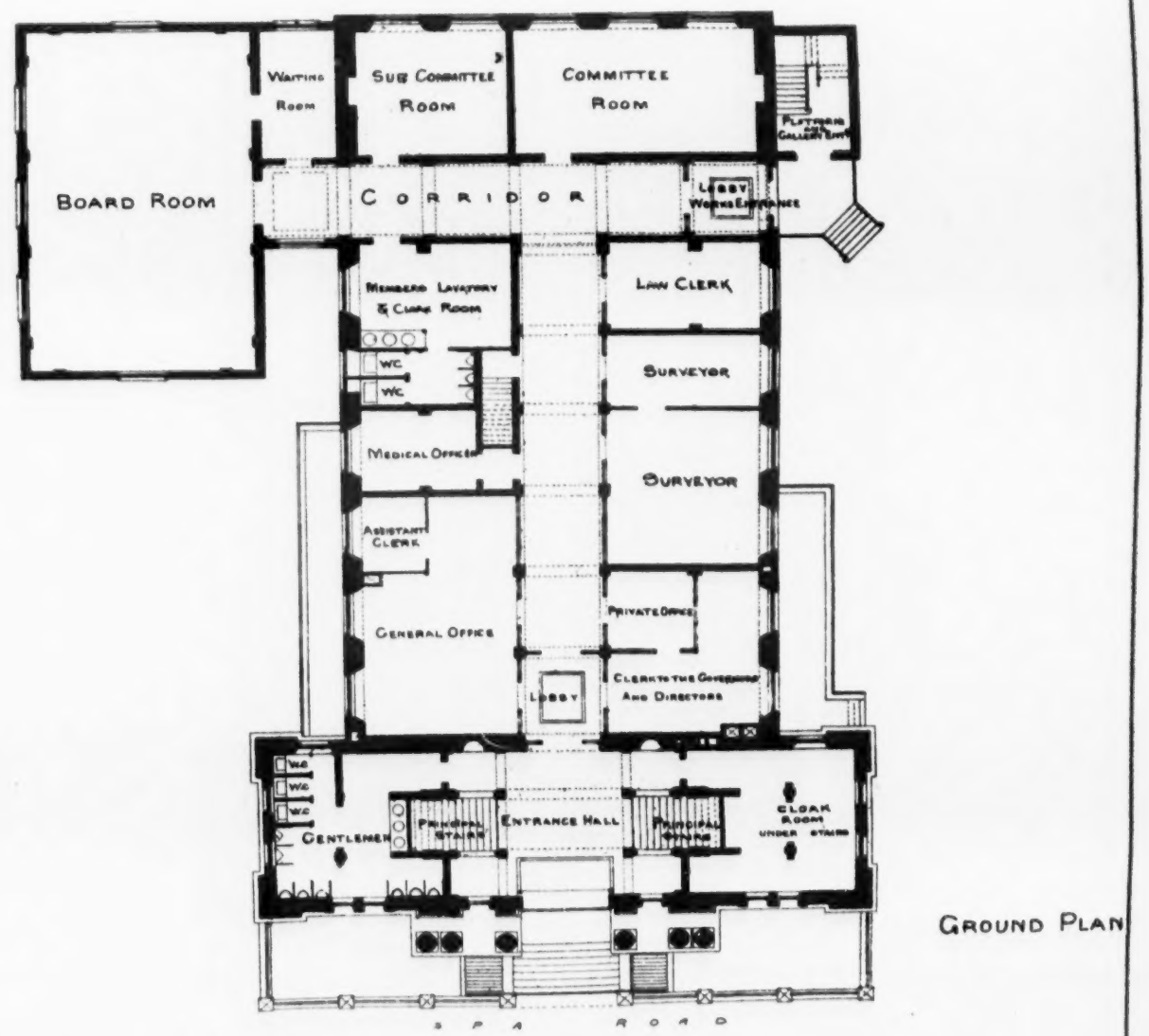
Whiteman & Bass Photo Litho 256 High Holborn

BERMONDSEY TOWN-HALL.—MESSRS. ELKINGTON & SON, ARCHITECTS.



FIRST FLOOR PLAN



GROUND PLAN

Scale of Feet

Whiteman & Bass *Photo-Litho* 236 High Holborn

Wyman & Sons, Printers, 74 Queen St.

BERMONDSEY TOWN-HALL.

DECORATIVE SUGGESTIONS FROM NATURAL FORMS.—No. 6.

The leaf of *Sterculea*, which forms the basis of the two capitals here given, bears, as will be seen, some resemblance in general style to the acanthus leaf, but is broader and rounder; the circle is, in fact, very predominant in the design of the leaf, both the points and inner margins of the indentations touching for the most part on the arcs of circles drawn from the point of departure of the leaf-ribs. If this leaf were used in flat or inlaid design, this circle element in it should be emphasised in the setting or background of the design: in carved ornament it can hardly be so without producing too stiff an effect.

The two designs here given are intended partly to illustrate what was observed in our leading article on the subject (*Builder*, October 9th), as to the double use which may be made of each suggestion by treating it in either picturesque or symmetrical style,—in other words, in the Gothic or the Classic type. Some features of Gothic and Classic capitals have, however, been purposely interchanged here; in the Gothic capital the central leaf under each projection of the cap is carried up and turned over under the abacus somewhat as in the usual treatment of the conventional acanthus in the Corinthian capital; and in the other more Classic form the scroll of the volute is inverted, a suggestion borrowed from the well-known type of Transitional capital found almost all over Europe during a portion of the twelfth century. The distinction between design for stone or for marble carving is also kept in view; the very conventional treatment of the leaf in the Classic design, with a small fillet carried round the margin, and the filleted scroll-work above, being only fitted for execution in a fine and hard material which will take and retain a very high finish. The eyes of the scrolls are supposed to be set with coloured stones or beads, a practice undoubtedly employed by the ancients in the Ionic capital, if not in other forms.

We have given the first six of these "suggestions" in consecutive numbers: in future we hope to continue to give others, perhaps more elaborated than these, from time to time as may be convenient.

BERMONDSEY TOWN HALL.

In 1878 the Vestry of Bermondsey, having resolved to erect a public hall, board-room, and offices, in order to provide for the necessary requirements of the district, took steps to obtain a suitable site for the purpose. Early in the following year they purchased the tanyard and premises originally occupied by Messrs. John Barrow & Son, in the Spa-road and Neckinger-road, adjoining the public baths and washhouses.

The site, containing upwards of 49,000 ft. superficial, comprises not only the space necessary for the intended public hall and offices, but also a suitable dwelling-house for the resident clerk of works, and a warehouse building three stories high, the ground-floor of which has been converted into stabling for twenty horses, the upper floors being available for stores. The remaining portion of the land will be appropriated as a stone depôt. The property is situated within a convenient distance from the Vestry's wharf and dock abutting on the river Thames, the two establishments thereby enabling the Vestry to provide for carrying on the whole of the public business connected with the parish.

The following statement from the census return of the parish will indicate the rapid increase which has occurred of late years, viz.:

	No. of Houses.	Population.	Rateable value.
1801	3,203	17,169	£34,387
1811	3,505	19,530	59,873
1821	4,691	25,235	65,141
1831	5,388	29,741	72,593
1841	5,963	34,947	76,633
1851	7,556	47,836	123,876
1861	8,523	58,212	150,216
1871	11,073	80,429	281,902

The population at the present moment is estimated at 98,000, and the rateable value is 364,855*l.*

The extent of streets and roadways under the jurisdiction of the Vestry is upwards of thirty-two miles, being nearly doubled since the Metropolis Local Management Act came into operation in 1856.

The new Town-hall fronts the Spa-road. The principal elevation and portions of returns are faced with Portland stone, and the rest of the building is of picked stocks, with white Suffolk arches and bands. The ground-floor, as the accompanying plan shows, contains accommodation for the several officers of the Vestry and of the Boards of Governors and Directors under a local Act. The board-room is 46 ft. 9 in. by 29 ft. 6 in. in the clear, and 20 ft. in height.

The public hall is 80 ft. by 52 ft. 9 in. in the clear, and 37 ft. 9 in. in height, with galleries on each side, and an additional gallery at the south end over the first floor landing. The hall and galleries are estimated to hold 1,200 persons. Provision is made for a platform or dais and retiring-rooms at the north end, with separate access.

The front portion of the structure contains entrance-hall, lobbies, and staircases, besides gentlemen's and ladies' retiring-rooms, lavatories, &c., so that the public hall may be used at any time without interference with the ordinary business of the Vestry.

The front portion of the basement will be fitted up with apartments for caretaker, strong rooms, heating apparatus chamber, coal-cellars, and kitchen departments (if so required) in connexion with the hall.

The rear part will be separately approached as a cart store, &c., from the depôt.

The whole of the floors are fire-proof, on Dennett's principle, the corridors paved with stone, and the entrance-hall and lobbies with ornamental tiles.

The works are being carried out from the designs and under the superintendence of Messrs. George Elkington & Son, architects, 95, Cannon-street. The contract for the buildings, amounting to 21,200*l.*, is in the hands of Messrs. Perry & Co., Tredegar Works, Bow. Mr. S. Ford is clerk of the works.

It is intended that the first stone shall be laid on the 23rd inst. by Mr. Porter, churchwarden of the parish.

MR. EDMUND SHARPE'S WORKS.

The Architectural Association has brought nearly to completion the volume to be dedicated to the memory of Mr. Edmund Sharpe, completing one of his projected tasks,—the illustration of the twelfth-century architecture of Charente. The volume will contain a memoir, and a full list of Mr. Sharpe's publications, and it has been represented to us that good service would be done by our printing a list in the *Builder*, and inviting our readers to find out gaps or errors in it, and to communicate with the secretary of the Publication Committee,—Mr. J. S. Quilter, 10, Brunswick-square, W.C. We gladly do this, and hope that the list will be as perfect as care and skill can make it. The books are dealt with this week; the minor works, pamphlets, and papers read before societies, &c., will be given in another number. It looks like a pleasant piece of hero-worship,—this thinking of even the sweepings of his workshop as of gold,—it is, besides, a view not far from the true one.

LIST OF BOOKS.

I. Decorated Windows, a series of Illustrations of the Window Tracery of the Decorated style of Ecclesiastical Architecture. London: Van Voorst. 1849.

Demy 8vo. (8¼ in. by 5½ in.). Without pagination,—one page of text to each plate. Sixty steel engravings, dated 1845. 1*l.* 1s.—This work was issued in monthly parts each containing eight steel plates, in single leaves with explanatory letterpress. The work was classified in chronological order, by a list of plates issued with the last part. It was at first intended that the concluding part should be "a review of the whole subject, illustrated by woodcuts." This review was expanded so as to form the volume which stands next in the list. (?)

II. A Treatise on the Rise and Progress of Decorated Window Tracery in England. Illustrated with ninety-seven woodcuts and six engravings on steel. London: Van Voorst. 1849.

Demy 8vo. (8¼ in. by 5½ in.)

III. Architectural Parallels; or, the Progress of Ecclesiastical Architecture in England, through the Twelfth and Thirteenth Centuries. Exhibited in a series of parallel examples selected from the following abbey churches:—Fountains, Kirkstall, Furness, Roche, Byland, Hexham, Jervaulx, Whitby, Rievaulx, Netley, Bridlington, Tintern, St. Mary's York, Guisborough, Selby, Howden. London: Van Voorst.

a. Large paper proofs, folio (24¼ in. by 18½ in.) 1846. 15*l.*

b. Small paper, tinted, folio (21¼ in. by 14½ in.), 1848. 12*l.* 12s.

Small paper, plain, ditto. 10*l.* 10s.

Dedication to the Earl of Derby, January, 1848. No text; but two lists of the plates are given, in order to convey suggestions for binding the work. The illustrations comprise one group of plans on wood, and 120 lithographs,—the geometrical drawings on stone by R. J. Withers and T. Austin, and the views by H. Fielding; all printed by Maclure, Macdonald, and Macgregor, of Liverpool.

IV. Supplement to "Architectural Parallels," containing the full-sized mouldings of the following abbey churches, Furness, Roche, Byland, Hexham, Jervaulx, Whitby, Fountains, Netley, Rievaulx, Bridlington, Tintern, St. Mary's York, Guisborough, Howden, Selby. London: Van Voorst. 1848.

Folio (21½ in. by 14½ in.). No letter-press beyond a list of plates. Sixty plates, lithographed by R. J. Withers (fifty-seven) and T. Austin (three), and printed by McKie & Lawson, of Lancaster. 2*l.*

V. The Seven Periods of English Architecture Defined and Illustrated.

Super-royal 8vo. (9¾ in. by 6 in.).

a. First edition. London: G. Bell. Preface dated 1851. Text, pp. i. to xiii.—1 to 37. Twelve plates, drawn by T. Austin, and engraved on steel by G. B. Smith,—also seven woodcuts. 10s.

b. Second edition. London: Spon. 1871. Pp. i. to xiii.—1 to 37. Twenty steel engravings and woodcuts. 15s.

VI. The Architectural History of St. Mary's Church, New Shoreham. Chichester: Mason. 1861.

Imperial 4to (12¾ in. by 9¾ in.). Text forty-seven pages. Two steel engravings by G. B. Smith, six lithographs by H. Fielding, one by R. J. Withers, fifteen woodcuts.

Supplemental sketch of the Collective Architectural History of Chichester Cathedral, Boxgrove Priory, and St. Mary's Church, New Shoreham, as indicated by their mouldings.

Text thirty-two pages. Sixty-two woodcuts. These works by Mr. Sharpe form part of a volume which also contains "The Architectural History of Chichester Cathedral, &c.," by the Rev. R. Willis, M.A., F.R.S., and "Boxgrove Priory" by the Rev. J. L. Petit, M.A., F.S.A. Issued at 1*l.* 10s.

VII. An Account of the Churches visited during the Lincoln Excursion of the Architectural Association, August 22nd to 27th, 1870. London: Spon. 1871.

Sup. royal 8vo (9¾ in. by 6 in.). Preface dated June 1st, 1871. Text 152 pages. Sixty-five lithographs, mainly transferred to stone by Mr. William Henman, and printed by Kell Bros., also four woodcuts. 1*l.* 1s.

VIII. The Mouldings of the Six Periods of British Architecture from the Conquest to the Reformation. London: Spon.

Imperial 4to (12¾ in. by 9¾ in.), lithographed by Kell Bros.

a. No. I. Preface (2 pages), dated May 1st, 1871. Sixty plates, wholly devoted to Pier Arches. 1*l.* 1s.

b. No. II. 1871. No text. Sixty plates (nineteen of Pier Arches, forty-one of Doorway Arches). 1*l.* 1s.

c. No. III. 1874. No text, but a chronological arrangement for the whole of Nos. I., II., and III. Sixty plates (twenty-five of Pier Arches, thirty-five of Doorway Arches). 1*l.* 1s.

The author's intention was that the three numbers should be broken up, and the plates arranged according to the "chronological arrangement" issued with *c*.

IX.—The Ornamentation of the Transitional Period of British Architecture, A.D. 1145—1190. London: Spon.

Imperial 4to (12¾ in. by 9¾ in.)

a. No. I. Introduction (ten pages), dated Feb. 1st, 1871. Description of Plates (to page 32) completed as far as Plate XIV. Forty-two plates (thirty-seven of pier capitals, three of doorways, and two of arcades), lithographed by Kell Bros., also three woodcuts. 1*l.* 1s.

b. No. II. Part I. No text. Twenty plates (fifteen of pier capitals, three of doorways, one of arcades, one of corbel-shafts), photo-lithographed by Whiteman & Bass.

c. No. II. Part II. No text. Twenty-two plates (sixteen of pier capitals, three of doorways, three of arcades), photo-lithographed by Whiteman & Bass.

d. No. III. The lithography of the remainder was nearly finished when Mr. Sharpe died. The letter-press cannot be completed; but it may be possible to publish a sufficient number of drawings to make the work fairly complete, and to issue "directions for the rearrangement and the numbering of the plates, and the binding of the whole in one volume," as proposed by Mr. Sharpe at the first. The parts were issued in indiarubber bindings, so that they might be broken up and the whole of the plates rearranged.

X. The Architecture of the Cistercians. London: Spon.

Imperial 4to (12¾ in. by 9¾ in.)

a. Divided into:—

Part I. General Plan.

(Preface dated June 20th, 1874.) Text, twenty-eight pages (Lancaster printed). Plate I., photo-lithographed by C. F. Kell.

Part II. The Domus Conversorum: containing the Day-room and Dormitory of the Conversi of a Cistercian Monastery.

(Preface dated June 30th, 1874.) Text twenty-three pages, five plates photo-lithographed by C. F. Kell.

a. Re-issued as Illustrated Papers on Church Architecture. No. I. April, 1875.

b. Illustrated Papers on Church Architecture, No. II. April, 1876. Cistercian Architecture.

Part I. General Plan (continued).

Text (Lancaster printed), pp. 29 to 87; appendix, pp. i. to xx. Seven plates, photo-lithographed by C. F. Kell.

c. Part III. Development of Choir, announced, but never completed. Plates IV., V., VI., VII., and VIII. of *b.* were prepared for the "Development of Choir."

XI. The Ornamentation of the Transitional Period in Central Germany. London: Spon (Lancaster printed). 1877.

Note.—The title on the cover reads "Illustrated Papers on Church Architecture. No. 3. November, 1876."

Imperial 4to. (12¾ in. by 9¾ in.). Introduction two pages; descriptive letterpress, eight pages. Twenty-one plates engraved by G. B. Smith, "from drawings made upwards of forty years ago."

This work was the last actually published before Mr. Sharpe's death, on May 8th, 1877. The next "Illustrated Paper on Church Architecture" was, however, ready to receive his last touches, most of the lithographs being actually printed off. "I have already published, in a separate work, Illustrations of the Ornamentation of the Transitional Period of British Architecture. In the next and following numbers of this series will appear illustrations of

the same period of Mediæval Architecture in the North and in the West of France." (Introduction to XI.)

Queries.

Was Part I. of "Decorated Windows" really issued on November 1st, 1844, as at first proposed?

What was the date of the issue of "Architectural Parallels"?

How was it issued to subscribers?

Is the date 1846 correct for any completed large paper copies?

Has a prospectus of the work survived?

How and when were the illustrations of Tynemouth Priory Church (4 plates) published?

A paper was read on Tynemouth by Mr. Sharpe at the Newcastle-on-Tyne meeting of the Royal Archæological Institute,—where was this printed?

THE NEW CHURCH AT SPALDING.

The dedication of the new church of St. Paul at Spalding took place on Wednesday, the 27th of October, and the readers of the *Builder* will no doubt, be interested in a description of what must be called a posthumous work of Sir Gilbert Scott. The edifice is the gift of Miss Charinton, of Spalding, who has, in addition, also built parsonage and school, and endowed the living. The cost of the whole has been about 30,000*l.*, and the church will accommodate 500 worshippers.

It is Early English in style, and consists of a nave of three principal arches, sub-divided into six arches on each side, with north and south aisles. The principal entrance is the south porch. At the west end of the nave, and connected with it by a corridor, is a well-proportioned campanile, carrying a broach spire, 135 ft. high. The walls of the campanile are 4 ft. thick to the full height of the tower. It contains a peal of eight bells, by Lewis, of Brixton, hung in iron cages; the tenor weighs 16 cwt. On the north side of the church is the priests' vestry; over this is the organ-gallery. Adjoining this is the choir vestry, from which a spiral staircase leads downwards to the heating apparatus and upward to the organ-chamber. The dimensions of the edifice are as follow:—

	Ft.	In.			
Entire length of interior ...	133	3			
Nave (length)	69	6			
Nave (width) including aisles..	49	0			
Chancel (length)	35	0			
Priests' vestry ...	16	6	×	13	0
Choir vestry ...	16	6	×	10	6

The materials used in the structure are red brick and Ancaster stone. The clearstory arcade consists of a continuous row of arches, supported on detached columns; six of these arches are pierced for windows. The whole of the roofs are covered with lead. The interior of the church presents a pleasing picture, from the peculiar treatment of the main arcade of the nave, which is supported on each side on three principal piers, with detached columns carrying the three semicircular arches. Each of the principal arches is divided into two pointed arches, springing from more slender columns between the main pieces. This unusual treatment may be seen in St. Thomas à Beckett's Church at Portsmouth, and at the church of Boxgrove, near Arundel, where the origin of this treatment is traceable in the Norman portion of the structure, and it was perfected in the subsequent Early English style. The stonework of the interior has been relieved by the introduction of stone with a red tint, also from Ancaster. The carving of the foliage throughout, and the various corbel-heads, are well executed. A very good likeness of the Bishop of Lincoln is carved in the north corbel of the hood of the chancel-arch. The windows of the chancel are set in deeply-splayed jambs, with clustered columns engaged, detached, and banded. The floor is elevated about 3 ft. above the ground-level, and is carried throughout upon Dennett's arching, thereby being protected from damp arising from the soil. The ironwork of the chancel-screen and the handrail of the pulpit are by Skidmore, of Meriden, Coventry. The pulpit, in carved oak on a stone base, is by Farmer & Brindley, Lambeth; as is also the carved work in the chancel. The altar-table is of oak, carrying a thick slab of Mansfield stone rather more than 8 ft. long by 2 ft. 6 in. wide. It is raised seven steps above the floor-level of the nave, the steps within the sacrarium being grey fossil marble, polished. The stalls and screens are of carved English oak, very massive. The sedilia and piscina are hooded, and recessed in the thickness of the south wall. The font is in its form similar to the font in the cathedral at Lincoln, but in Mansfield Woodhouse stone, with Purbeck marble shafts. Mr. Hannaford was clerk of the works.

The contract for the whole of the work was undertaken by Messrs. Pattinson, Brothers, of Ruskington, near Sleaford, who must be congratulated on their work.

At the consecration, the venerable prelate of Lincoln congratulated the vicar of Spalding on the acquisition of another beautiful church to his parish, and remarked that, during the period of his incumbency more than 80,000*l.* had been spent in his parish in church restoration, building, and endowment, and that three new churches had been built in the same time within the period of his episcopate.

NOTES FROM BRISTOL.

The building trade is not at all in a flourishing condition in Bristol or the neighbourhood, and, if the statement of one of the leading builders may be accepted, the operatives engaged in this branch of industry will, during the winter, have to pass through a hard time, for which most of them are ill-prepared. Speculative house-building, which a year or two ago seemed the rage on all sides, is now not nearly so active. The falling-off may be attributed to two causes: the house market is already over-supplied; most of the available building areas within an easy walking distance of the centre of Bristol have been used up; three or four large estates in the suburbs, however, are marked out for the erection of small and medium-sized houses, so that work in this department is not brought to a complete standstill.

Amongst the public buildings still in hand is St. Peter's Church, Clifton. Old St. Peter's was found too cramped for the congregation, and a fine new structure is being built on a convenient site only a few yards from the old edifice.

The Knowle Baptist Chapel, the foundation-stone of which was laid in the middle of the summer, is in an advanced state of progress, and will be before long ready for use. The place is internally light and convenient, and provides for some 500 or 600 worshippers, besides having spacious class and school accommodation. Mr. Beaven is the builder, and Mr. A. Harford the architect. The cost is estimated at about 2,000*l.*

The Parochial Hall at St. Philip's,—a parish with between 30,000 and 40,000 inhabitants,—promises to be a fine one. It will meet a long-felt want of a large hall for public meetings in the centre of the district, and also provide room for the transaction of various matters of parish business. Messrs. Wilkins & Son are the builders.

A week ago the Mayor of Bristol laid the foundation-stone of a new Mission Church at Eastville,—a growing suburb of Bristol. The design is Early English in style, and the front of the building will be of Pennant stone, with Freestone dressings. The cost of the work is expected to amount to 1,700*l.* Mr. H. Williams is the architect, and Messrs. Eastabrook & Sons have taken the building contract.

A simple and inexpensive Mission-hall has been commenced in the heart of St. Philip's.

Mr. Krauss is just finishing the laying of a tramway line to Bedminster, after completing another branch of the same system which extends to Horfield. The Horfield line will be worked by steam, this being intended as an experiment to see how far the cheaper power can replace horse-flesh. One or two short bits of line have still to be laid to complete the tramway system, which will then supply nearly all parts of the city.

Instructions have been given to a committee of the Town Council to erect a bridge over the New Cut in place of a light iron one erected at the beginning of the century. The present bridge is manifestly insufficient, and the new one will be on a much more modern principle. The cost is roughly estimated at 8,000*l.*

Instructions were given last week for laying out a small public pleasure-ground at Cotham, presented to the city, at a cost of 800*l.*

The new police-courts in Bridewell-street, which cost some 15,000*l.*, and have been in use several months, are a great improvement on the old Council-house, as far as ventilation and accommodation are concerned, but have two serious defects. The chief court has such peculiar acoustic properties that it is difficult to hear in it, and the smaller one is terribly draughty.

A new chapel is being added to the Borough Lunatic Asylum at Stapleton. The style of architecture is Norman Gothic, and accommodation will be found for about 350 patients and their attendants at a cost of 2,600*l.* Mr. Edwards has prepared the designs, and Messrs. Forse & Ashley have obtained the contract.

THE EARLIEST NORMAN KEEP, AND THE CASTLE OF FALAISE.

Sir,—As to the objection which you make to my statement,—that the earliest Norman keep is in all probability the one at Malling, in Kent, cannot be reconciled with the usual tradition in Normandy, that the *present castle* of Falaise is the one from which "William's father saw Arlette, the tanner's daughter,"—the explanation is, that although the present castle is on the same site, the existing building is certainly not of the time of the Conqueror, still less of his father, and is probably fifty years later than either. It is the old story. People consider the date of foundation as necessarily the date of the existing building, and make no allowance for the frequent rebuildings that took place everywhere, especially in the twelfth century. It is, perhaps, sufficient to say that Falaise was certainly one of the places visited by De Caumont and his friends in search of masonry of the first half of the eleventh century, and could find no masonry of that period in any one of the places they visited. This fact opened the eyes of De Caumont to the delusion which he had previously been under, in common with all the other antiquaries of Normandy. De Caumont himself never hesitated to acknowledge this; others were not always equally ready to acknowledge it. English people are often deceived by the name of the Norman style, which is quite correct in England, but in France this style is called the "Anglo-Norman" style. The style was, in fact, developed after Normandy became a province of England. There are quite as many Norman buildings in England as in Normandy. Few Englishmen know the architecture of Normandy better than I do. About fifty years ago I visited all parts of it, and was there many, many times. I was introduced to De Caumont by Dr. Buckland, the geologist, at Caen, at the meeting which De Caumont had called for the purpose of forming an Architectural Society. This was in the year 1834; two or three years after this, when I went again to Normandy for the purpose of going about and seeing things with my own eyes, I was accompanied by my friend M. Bouet, the excellent artist, whom De Caumont always gave up to me when I was in France, and we had instructions from De Caumont himself what places to go to. I have some scores of M. Bouet's drawings for which the sketches were taken on that occasion, amongst others the existing castle of Falaise, also of the church of St. Étienne, usually called the *Abbaie aux Hommes*, at Caen, of which my friend Bouet afterwards wrote and published the history; but this was not until after I had convinced both him and De Caumont that the existing vault and clearstory are of the time of Henry II., seventy years after the time of the Conqueror. The church originally had a wooden roof only, and, like all the other churches of the eleventh century, of the same width. When I first told this to my French friends, they would not believe it, for they had known the building all their lives, and must know it better than I did; but when I had persuaded them to go up to the clearstory gallery with me, they acknowledged that I was right; and Bouet has acknowledged this in print, both in the *Bulletin Monumental* and in his history of the church. The explanation of this is that I have profited by the teaching of Rickman and Professor Willis, that the history of any building can be best ascertained by comparison with others of the same period; they had not had the same opportunity.

Experienced eyes can often read off the history of a building almost at first sight, from having seen a score of others of the same kind, and therefore see the history of a particular building better than those who have studied it carefully, but have had no opportunity of comparing it with others.

For the same reason, beginners often cannot see the history at first, even when it is pointed out to them by those who have had experience, and afterwards wonder how they could have been so stupid as not to have seen it before.

English travellers in Normandy generally take

the dates of the buildings from Murray's "Handbook," and unless they have the latest edition this is very likely to mislead them. In the latest edition that I have seen, Gally Knight's "Tours in Normandy" was the authority for all the architectural history. The ideas of Mr. Gally Knight were rather in advance of his time, and he was assisted by Mr. R. C. Hussey, certainly one of the best-informed persons on this subject at that time, but that time was sixty years ago, and during the last half-century Architectural History has made great progress.

JOHN HENRY PARKER, C.B.

*** The modest intimation that all who do not agree with Mr. Parker are ignoramuses, is characteristic, and not to be admired. There is no evidence whatever to disprove the general belief that William was born in the existing castle at Falaise. Is it reasonable to suppose that William's companions in England should forthwith proceed to erect structures such as the Tower of London, if they had known and seen nothing but earthen mounds and trenches in their own country? Some years have passed since we saw Falaise, but our recollection, aided by memoranda made at the time, tells us that it exhibited such work as might have been the precursor of that at the Tower.

We have not leisure at the moment to go fully into the question, but may mention, for what it is worth, the account of the siege which Falaise withstood in 1027, as given by a contemporary, Guillaume de Jumièges. Robert, the brother of Richard III., who was then Duke of Normandy, had rebelled against him and taken refuge with his adherents in the castle of Falaise, and the chronicler relates how that the Duke plied the battering-rams so long and so vigorously to the walls that Robert gave in. In other early writers also the walls of the castle are expressly mentioned.

HERTFORDSHIRE CONVALESCENT HOME, ST. LEONARD'S-ON-SEA.

THIS building stands on the crest of a hill near the West Marina Station, St. Leonard's, with an uninterrupted view to the sea, and a south-west view extending to Beachy Head. It was opened on the 28th ult. by H.R.H. the Princess Christian.

An endeavour has been made to avoid the character of an institution, and to give, both in the architecture and internal arrangements, as much the character of a home as was consistent with its uses.

The home is entered on one side to the men's department, and on the other to the women's, and the upper floors are approached by distinct staircases, the communication only being by a pass door, to be used by a matron. The sitting-rooms face the sea, and are sheltered by a continuous verandah. In the rear of the hall, and approachable from each side, is the dining-hall, and in direct communication with it is, in the rear, the kitchen, scullery, and other domestic offices, the dinner being served by a buttery-hatch.

On the right, as you enter on the women's side, is the committee-room, the matron's room, stores, and other accommodation. On the first and second floors there are dormitories, fitted to take forty beds, designed with a view, as far as possible, of securing cross ventilation to each room. Separate sick-rooms are provided for each sex, with lavatories and bath-rooms, there being also accommodation for the matron, the servants, and provision for stores of linen.

Provision has been made, on an average, for a space of not less than 1,000 cubic feet for each bed, and under no circumstances will more than seven persons sleep in one room, the average being less. Air is admitted under the sills of the windows, by hit-and-miss brass gratings, from bent flues, and the extraction is by means of ventilating-flues taken up beside the chimney-flues, fitted with "Eyre's" ventilators.

As regards the drainage, all contact with the main sewer is intercepted by a Doulton's trap, the sinks and bath wastes discharging in the open air with trapped gratings. All the soil-drains are without the building, and in every case ventilated at the top.

The rain-water has been preserved by a separate system of pipes, and is taken to a large tank available for house use. Internally, the building has been fitted with Lloyd's ventilating and warming stoves to the principal rooms, and the chimneypieces are of wood fitted with tiles, the gift of a lady.

The principal entrance-door has some stained glass, given by Messrs. Shrigley & Hunt, who also gave some tiles for the chimneypieces. The corridors have tiled floors, and the walls are finished with hard surfaces.

The whole of the works have been executed by Mr. Ebenezer Lawrance, of Wharf-road, City-road, London; and the designs have been prepared by Mr. Thomas Chatfeild Clarke, architect.

NEW FREE LIBRARY FOR DUNFERMLINE.

CONTRACTS were lately signed for a new library building presented to Dunfermline by Mr. Carnegie, a native of the town, and to be called the Carnegie Free Library. The sum gifted is 8,000*l.*, of which 5,000*l.* or so are to be spent on a new building, and the remainder on books. The plans were prepared by Mr. J. C. Walker, architect, Edinburgh, and the style is the Domestic Tudor. The new building will have a frontage to St. Margaret-street and Abbot-street, and it will be in close proximity to St. Margaret's Hall, recently built from designs by Mr. Starforth, architect, Edinburgh. The front to Abbot-street is 82 ft. in length, and two stories in height; while the St. Margaret-street elevation is 70 ft., and of the same height. The principal entrance is near to the corner of the Abbot-street frontage, and has been designed so as to give the appearance of a square tower. This part of the elevation is carried a story higher than the rest of the building. The doorway is finished above as a gablet with carved stone finial. The third story of this part has oriel windows, and the interior is to be set apart as a smoking-room. The oriels are to be supported by boldly-moulded corbels, and surmounted by small turrets. The plans show a library-room, 57 ft. 3 in. by 25 ft. 6 in.; recreation-room, 26 ft. 6 in. by 25 ft. 6 in.; gentlemen's reading-room, 34 ft. 3 in. by 25 ft. 6 in.; ladies' reading-room, 22 ft. 6 in. by 18 ft. 10 in.; smoking-room, 28 ft. by 16 ft.; and a keeper's house, consisting of three rooms and a kitchen. Lavatories will be provided, and decorations are to be adopted in keeping with the general design of the structure.

FURTHER SALES OF BUILDING LAND.

THERE have been several sales of building sites in the suburbs within the last few days, in addition to those which from time to time have already been reported in the *Builder*. On Monday evening in last week Mr. W. H. Collier submitted for sale at Myddelton Hall, Upper-street, Islington, 122 plots, situated in Hornsey-lane, belonging to the British Land Company, on an estate which the company has recently purchased. The sites have frontages to a number of new roads which have been constructed, leading from Hornsey-lane and Hazelville-road, and are close to Highgate Archway, and within a few minutes' walk of the Crouch-end Station of the Great Northern Railway. Twelve of the plots have frontages of 20 ft., with a depth ranging from 127 ft. to 137 ft.; the remaining plots having also frontages of 20 ft., and a depth of from 80 ft. to 85 ft. Of the entire number of plots offered, 101 plots were sold, the larger plots realising an average sum of 132*l.* each, and the smaller ones 110*l.* each. The entire proceeds of the sale amounted to 11,110*l.*

On the same evening, Messrs. Baker & Son offered for sale, at the Victoria Tavern, Edgware-road, Kilburn, the second portion of the Stonebridge Estate, at Willesden, close to the Harrow-road Station of the Midland Railway, and the Willesden Junction of the London and North-Western line. The number of plots submitted was 76, the plots having frontages of 16 ft. each, and a depth of from 90 ft. to 100 ft., and described as well adapted for small dwelling-houses. About one-half the number of plots offered were sold at prices averaging 34*l.* each, the total amount of the sale being 1,154*l.*

On Thursday evening, the 28th of October, Messrs. Protheroe & Morris offered for sale, at the Eagle Inn, Snaresbrook, 76 plots of freehold building land at Wanstead, having frontages to George-lane, which are reserved for shops, and other frontages to three new roads, to be called Mansfield, Camden, and Sydney roads, stated to be specially adapted for cottage property. The property is immediately adjacent to Epping Forest. Amongst the restrictions contained in the conditions of the sale, it was provided that the trade of an innkeeper or victualler is not to be carried on upon any lot on the estate, nor is any lot to be used for the erection of a school, church, or chapel, or as tea-gardens, or as a place of public amusement or resort. It is further provided that no trade or business is to be carried on on any lots except those fronting on George-lane, nor is anything to be carried on on any part of the estate which may be a nuisance or an annoyance to the adjoining property, that of the trustees of the Earl of Cowley; neither are any bricks or tiles to be made, nor is any clay or lime to be burnt. There was a large attendance at the sale, and a few lots only remained unsold. The shop lots facing George-lane realised from 5*l.* to 5*l.* 5*s.* per foot frontage, and those lots fronting the other roads 3*l.* per foot frontage; the total proceeds of the sale amounting to about 2,500*l.*

The second and last portion of the Harringay New Park Estate, Green-lanes, was also sold last week, at the Queen's Hotel, Wood-green, by Mr. R. J. Collier. It consisted of 139 lots. The first lots offered were stated to have frontages to the Green-lanes of 25 ft., with a depth of 280 ft., and were sold for 200*l.* per plot. A tavern site realised 550*l.*, and other plots of less important frontages were sold for proportionately good prices. The total proceeds of the sale amounted to 11,275*l.*, which, added to the sum realised by the first sale, makes the aggregate sum realised for the estate, fifteen acres in extent, 22,450*l.*, or about 1,500*l.* an acre. We are informed that the estate, when purchased by the vendor, did not cost more than 10,000*l.*, and that the profit on the re-sale, after deducting the cost of roadmaking and other expenses, will be about equal to the original purchase-money.

VALUATION OF PROPERTY IN KENSINGTON.

THE following is the result of the recent quinquennial valuation of property in the parish of St. Mary Abbotts, Kensington:—

	Gas, Water, and Railway Companies.		Houses, Land, and other Companies than in No. 1.	
	Gross. £	Rateable. £	Gross. £	Rateable. £
New Valuation List appproved 30th October, 1880	95,985	84,777	1,873,516	1,563,410
Valuation List in force to 5th April, 1881 ...	55,600	46,334	1,709,762	1,426,652
Increase ...	40,385	38,443	163,754	136,758

A YEAR'S BUILDING IN GREENOCK.

THE members of the Greenock Dean of Guild Court last week had a very pleasant meeting, when Dean Smith made his statement of the work passed through the court for the year ending with October. Altogether there had been 688 cases before the court, or 138 more than in the preceding year, showing that Greenock had not so seriously shared the great building depression as Glasgow and other towns in Scotland. Of the buildings erected during the year, there were twenty-two blocks or tenements, giving accommodation to 149 families; twenty villas for the better class population; nineteen workshops and stores; and fifty-one miscellaneous buildings, which included a wall, enclosing an extension of the public cemetery, of about a mile in length. In the way of public buildings, there were erected Free St. Andrew's Church, a Roman Catholic school, new Post-office buildings, the first section of the new Municipal buildings, and the West-end baths building. The estimated value of new buildings erected during the year was 181,900*l.*, an increase of 61,000*l.* as compared with the preceding twelve months; and with 12,000*l.* spent on the construction of sewers, the total sum is 193,900*l.* Greenock is extending, and its building trade appears to be healthy.

Criticism.—Mr. T. H. Hall Caine begins, November 15, at the Liverpool Free Library, a course of lectures on "Curiosities of Criticism: 1800—25." The lecturer's syllabus states that the lectures will deal with the critical anomalies on Wordsworth, Southey, Coleridge, Byron, Leigh Hunt, and Keats.

SOCIETY OF ARTS.

The first meeting of the 127th session of the Society will be held on Wednesday the 17th inst., when the opening address will be delivered by Mr. F. J. Bramwell, F.R.S., chairman of the Council.

The following arrangements for the Wednesday evenings before Christmas have been made:—

Nov. 17.—Opening meeting of the session. Address by Mr. F. J. Bramwell, F.R.S., chairman of the Council.
Nov. 24.—The Influence of Barry upon English Art. By J. Comyns Carr.
Dec. 1.—The Photophone. By W. H. Preece, Pres. Soc. Tel. Engineers.
Dec. 8.—London Fogs. By Dr. Alfred Carpenter.
Dec. 15.—The Use of Sound for Signals. By E. Price Edwards, secretary to the deputy-master of the Trinity House. On this evening Dr. Tyndall, F.R.S. will preside.

The first course of Cantor Lectures will be on "Some Points of Contact between the Scientific and Artistic Aspects of Pottery and Porcelain," by Prof. A. H. Church, F.C.S. Five lectures. The following is the syllabus of the course.

Nov. 22.—Bricks, Tiles, and unglazed Terra-cotta in general.
Nov. 29.—Vitreous, Plumbiferous, Boracic, and Felspathic Glazes and Enamels. Iridescent and Metallic Lustres, and Colouring Substances.
Dec. 6.—Stoneware and other Wares glazed with salt.
Dec. 13.—Soft Paste Porcelains,—European, and Oriental; and
Dec. 20.—Hard Paste Porcelains,—Chinese, Japanese, and European.

DISCOVERY OF ROMAN ANTIQUITIES IN YORK.

On the 16th of October the workmen engaged in excavating for the foundations of a new building attached to St. Mary's Convent, York (which is now being enlarged under the direction and from the designs of Messrs. Goldie & Child, architects), made a very remarkable discovery. At 6 ft. below the level of the ground several pieces of stone were found which, upon closer inspection, proved to be the remains of three small Roman altars, and near to them was a much larger mass which, upon being uncovered, proved to be a statue cut out of sandstone nearly life-size.

Of the altars, two are tolerably perfect. The largest measures 17 in. in height, and is 8 in. wide, measured at the shaft or body of the altar. The *mensa* or head is 9 in. in width, and shows the usual cavity for burning incense. It was evidently one of those small altars which the Romans set up in front of the statues in their private residences, and which, from their small size, could be removed from place to place with the rest of their household goods. It is carved out of hard polished stone, and is adorned with ornamental fluting. The remains of colour can be distinctly traced. The inscription is legible, and has been thus read:—

"C. JULIUS CRESCENTIUS
MATRIBUS DOMESTICIS
V. S. M. L.
ANNO URBIS CONDITÆ 1001" (or 1005).

The second altar is of sandstone, the same material as the figure, to which it was probably attached. It is 13½ in. in height, and the body of the altar is 7 in. wide. The only word that can be traced of the inscription is the word "IIARTI," probably "Marti."

The third stone, which is also supposed to have formed the body of an altar, though both *mensa* and base have disappeared, bears an inscription, of which the following words alone have been made out:—

"DEO VETERI BIBLI—"

The termination of the last word is at present disputed.

The statue, which seems to be in a very perfect condition, except that the feet are wanting, represents a young man of muscular frame, clad in a military dress of the prætorian rank. The head, though perfect, was unfortunately broken off in the process of digging the statue up. It is presumed by one of the antiquaries who have seen these remains that the figure is intended to represent the god Mars, and that the altar bearing the word "Marti" was connected with it.

There can be no doubt that such a very remarkable discovery as this will lead to considerable comment, and that the inscriptions will lead to some discussion among the learned. Several readings and translations have been suggested to us, but we prefer to wait and see what others learned in such matters have to advance before expressing any opinion.

"SOME WORDS OF FAREWELL."

Mr. S. C. Hall, F.S.A., after editing for forty-two years the *Art Journal*, which he founded, has resigned the position, and has published some interesting and touching words of farewell to the public. Sketching the position of things at the time the journal was started, he shows that there was literally no "patronage" for British art. Collectors did, indeed, buy pictures as befitting household adornments, but they were "old masters" with familiar names, canvasses that had never been seen by the artists to whom they were attributed, copies or imitations by "'prentice hands;" and he showed, month after month, that a larger number of Titians, Raffaelles, and Rubenses paid duty in a year, than these masters had produced during their lives. On the other hand, he made manifest the policy of buying only such pictures as could be readily identified,—certified by the artists who were living; urging the probability that they would increase and not decrease in value, while it was almost certain that so-called "old masters" would ultimately be worth little more than the panels and frames. He has had his reward in living to see such old masters valued accordingly, and a thorough transfer of patronage to modern art.

In speaking of the circumstances which encouraged him in the task, Mr. Hall justly refers, as amongst them, to the operations of the Art-Union of London, but he does not say, as he might,—he has probably forgotten it in the lapse of years,—that it was the establishment of that society which led to the foundation of the journal, and provided for its first base of operations. Mr. Hall points with just pride to the part he has taken in bringing about the association of the Industrial Arts with the Fine Arts proper, and needs no excuse, though he asks it, for seeking to show that the art spirit and character of the age have been largely served and materially advanced by the journal he is about to consign to other hands,—to enjoy the repose earned by forty-two years of labour, and by sixty years of work as "a man of letters by profession." He does not look to be altogether idle, but hopes for ease and leisure to complete a work on which he has been some years engaged,—"Recollections of a Long Life."

Sincerely and heartily we wish him health and energy completely to carry out his wish.

ARTISANS' DWELLINGS IN LONDON.

On the 5th inst. a meeting of delegates from the Metropolitan Vestries was held at the St. Martin's Vestry-hall, Charing-cross, to adopt a memorial to the Home Secretary, based on a report agreed upon at a previous meeting, on the subject of the Artisans' Dwellings Act. Mr. E. J. Watherston presided. The following were among the conclusions arrived at in the report:—That no class of citizens had a right to dwellings or sites for dwellings at the public cost; that only imperative considerations of public health could justify the outlay of the public money for such purposes as those of the Artisans' Dwellings Act; and if these considerations could be adequately provided for under Torrens's Act, it was unjust to add to the heavy and constantly-increasing weight of local taxation by enforcing the provisions of Mr. Cross's Act. That owners of the class of property chiefly affected by these Acts should be placed under strong pecuniary inducements to keep it in proper and habitable condition; that, if property had been kept in such a state as to be unfit for human habitation, or so as to become a nuisance, the penalty of such a course should fall upon the owners, and that the provisions of the Act should be vigorously applied whenever premises were in the condition contemplated by Section 5, Act of 1868, whether that condition had resulted from overcrowding, defective construction, the absence of sufficient area for light and air, or general dilapidation and uncleanliness. That the working of the Artisans' and Labourers' Dwellings Improvement Act, 1875, was impolitic and ruinously extravagant, and that in the interests of the ratepayers the provisions of the Acts known as Torrens's Act, 1868-79, should be put in operation and fully exhausted by the local authorities throughout the metropolis before any further action was taken under the first-mentioned Act. That the cost of works under Torrens's Acts, whether executed by the owner or by the local authority, should be apportioned by the arbitrator between the parties holding the several freehold and leasehold interests, regard being had to their various responsibilities and the value of their interests.

On Monday afternoon, at a largely-attended meeting of the Council of the Charity Organisation Society, held under the presidency of General Cavenagh, the subject of artisans' dwellings in London was dealt with in a report from a special committee appointed by the society. This committee included the Duke of Westminster, the Earl of Shaftesbury, Lord Norton, Sir R. Cross, M.P., Sir C. P. Trevelyan, Sir U. Kay-Shuttleworth, Mr. Ernest Hart, Dr. Jabez Hogg, Dr. Hawksley, Dr. Greenhill, Miss Octavia Hill, and others. The report was now presented, and after entering fully into the great losses occasioned in purchasing and clearing the blocks of unhealthy houses and the re-sale of sites, the committee expressed the belief that "such losses might be very greatly reduced by an amended law and improved administration," and quoted the report of the Metropolitan Board of Works, which body laid stress upon "the slow and cumbrous method of procedure," and the "numerous and protracted formalities required by the statute." The committee recommended that a letter should be sent to the Home Secretary, asking that the Minister would appoint a departmental committee to make a searching and authoritative investigation into the causes of the delay, expense, and other evils that had attended the administration of the Artisans' Dwellings Acts, and the sections of the Metropolitan Streets Improvements Acts (of 1872 and 1877) providing for the re-housing of persons displaced under those Acts. This recommendation was adopted.

CONSECRATION OF A CHURCH AT GUNNISLAKE, CORNWALL.

The new church of St. Anne, Gunnislake, which takes the place of a little building, formerly a Baptist Chapel, was consecrated on Tuesday, November 2nd, by the Bishop of Truro. The new edifice, of which Mr. J. Piers St. Aubyn is the architect, is in the Early English style. The massive granite pillars of the arcade, the little clearstory, and the lancet lights, are very effective. The granite is the pure silver-grey stone of the district, and was supplied by Mr. E. Story, of the Gunnislake granite quarries and works. The church stands upon a very steep piece of ground, and the architect has resorted to a device to avoid the use of more building material than possible. He has arranged the seats of the nave in a series of steps, which have no bad effect, and have the advantage of enabling the congregation to see the preacher, and to have a full view of the communion-table.

The total cost of the building was 2,000*l.*, 500*l.* being given by the Duke of Bedford, and the Earl of Mount-Edgcumbe rendered liberal assistance.

The interior of the building is 83 ft. by 43 ft. wide, and will accommodate 300 people. The woodwork is chiefly pitch-pine. The iron communion-rails were wrought by Mr. W. Rose Kilby, son of the builder. The vestries are under the church, and are 20 ft. by 15 ft.

DISTRICT MARKETS.

Sir,—Of course, the realisation of such a project in London would meet with much opposition, but none the less would it be a benefit to the public. The extremely high price of food in some quarters of our great and increasing City drives people with limited incomes, however unwillingly, to co-operative stores, and this is on the increase, however much the provision-tradesmen may affect to ignore it. Every visitor to Paris must have seen what pleasing as well as useful features of that attractive centre of civilisation are the markets, gay with fruit and flowers, while, at the same time, affording also more substantial articles of supply. I should like to see such markets established in each of our suburbs. Also they would afford opportunities for very pleasing architectural structures. If two or three men of wealth would take up this idea, there seems but little doubt that it might be carried out to a financial success, and to the great advantage of the public. Perhaps the most striking anomaly in the food-supply of the metropolis of this sea-

girt isle is the high price of the fish that swarm round its shores. Scarcely a fourth of the price for this article of food paid in the western districts goes to the hardy mariner who wins it, with labour and peril, from the waves, and all the rest stops with the middlemen, who stand between the consumer and the toiler of the sea. This is one of the points in which the establishment of such district markets would be calculated to yield relief to the public. Many others exist, and I venture to write this for the chance of its insertion in the *Builder*,—not only because the cheapening of supply of the various articles of food to the consumer is a sanitary question, but that the structures for accommodating such markets would offer fertile opportunities for pleasing architectural display.

C. S.

THE TOPOGRAPHICAL SOCIETY OF LONDON.

Sir,—In reference to the inaugural meeting of the above Society, held at the Mansion House, it may be of advantage to the profession to know that extensive collections of London topography are already in existence which are open to them for consultation. The Croll, and the recently-acquired Crace, collections are in the British Museum; the small Fauntleroy collection is is the Soane Museum; there are collections forming in the Guildhall Library, and illustrations of the utmost interest are contained in the Bodleian and Pepysian libraries. Besides these, my own collection, numbering upwards of 100,000 prints and drawings of London, can be seen by architects desirous of consulting it for any special purpose.

Without wishing to discourage the Society in any one of the objects they have set themselves, my own experience, extending over forty years, is that original illustrations of old London are rapidly becoming more and more difficult to obtain, and that, even with ample funds, many years must elapse before anything like a representative collection can be brought together. The Society has, however, planned out useful work in so many directions that its resources are sure in any case to find ample employment.

J. E. Gardner.

453, *Strand*.

HOUSE-DRAINAGE AND SEWER WORKS AS A SPECIALTY.

Sir,—I beg to back up the remarks of a "Practical Sanitarian" at page 514, October 23rd, regarding the use of small-bore drain-pipes. Like him I deprecate the use of 4 in. drain-pipes for closets, &c., and especially if the distance is yards. I think, however, that needless expense is very often incurred by putting in 9 in. pipes where a less size would serve better. The ordinary sizes in use are 4 in., 6 in., and 9 in. diameter for houses and tenements. Now, I think, that 5 in., 6 in., and 7 in. would, for general use, be much better. Where the pipe has a fall of 1 in 30 it will take a very large flow of water to fill up a 7-in. pipe three-fifths. Bad workmanship has had a good deal to do with putting in large-sized pipes, *e. g.*, by leaving "shirt-collars" of cement sticking up at the joints. With leaking joints, again, the soil is left lying in the drain-pipe, owing to the water running into the ground through the joints, and so the larger the pipes the longer time is required to fill them up,—ergo, the old masons reasoned "large pipes are better than small ones!" How many thousands of lives have been lost by this stupid carelessness and ignorance none can tell; but the number must be great, and the evil is still going on. It is *legal*, however, and you cannot hang a man for *legal murder!* Yon poor betrayed woman is a wretch for killing her child, and may be sent to the gallows, but the speculative builder, who, often knowingly, executes his drainage so that wholesale disease and death are bound to be the result, gets off scot free! How admirable are our laws, and how honourable are our legislators!

I was lately examining the drains in a fine castle where the drain-pipes were partly laid through an expensive tunnel, and debouched into a stream less than 100 yards from the house. I turned on all the water-closets at once, but not a drop of water came out at the end of the 9-in. drain-pipe, it all soaked into the ground. In this case the joints were well cemented all round except a small piece at the bottom of each where the workman seems to have been unable to get his hand in easily between the bottom of the pipe and the stone floor of the tunnel. This incident caused me to get pipes made with attached rests about 1 in. high, so that in such cases, or where pipes were laid on a concrete bed, the workman could easily get his hand or tool in under the joint and so have no excuse for making a bad joint. The bottom of this rest is made flat, so as to prevent the pipe from rolling or moving after the joint is made. Rain or water in the trench is also prevented spoiling the joint, as would be the case with the holes dug at each joint, as shown by Mr. Waring in "Fig. 19," page 377, of your issue for the 25th of September. Of course, after these pipes have been laid, and the joints set and tested, the pipes required to be packed with the soil, or, better still, concreted either half-way up or wholly round. If outside the house the former is sufficient, which I have done where the drains were higher than the well supplying water to a mansion-house. These pipes were patented by me in December last, and the judges of the Philosophical Society's Exhibition at Glasgow just closed have awarded me the "First-class Certificate—Highest Award" for them, in conjunction with my patent ventilating drain-trap, now so largely used all over the kingdom. Even with the best materials, and no estimate, I find it difficult to get good work without close supervision: hence the necessity that exists for allowing no new houses to be occupied until the drainage and sanitary fittings have been passed by a competent inspector. Until such is carried out, I look upon the public as guilty of suicide, and our legislators of manslaughter, for all the deaths that have occurred, and which will occur, from the bad drainage of houses, say since January, 1880.

W. P. Buchan.

OLD PLASTER CEILINGS.

Sir,—Having had a large experience in reproducing old ceilings, especially of the date of George I., I can endorse Mr. Robins's statement as to the dangerous condition in which they often are.

I remember seeing the parts of the ceiling of the ball-room in old Northumberland House after the fire, and was astonished that the huge masses of plaster had not come down before; there were heads of boys in solid stucco (which I could scarcely lift) held up by a single spike.

There is, however, a remedy for this in the patent Fibrous Plaster. Any amount of relief can be produced, and the fibrous nature of the material prevents any portion of it being detached from the other part, besides being in itself exceedingly light.

John Jackson.

BUILDERS' ACTIONS.

In the Court of Exchequer, Dublin, on Monday, before Mr. Justice Barry and a special jury, a case, Hammond *v.* Graham, was heard. The plaintiff, Mr. A. Hammond, a builder and contractor, sought to recover 276*l.* 12*s.* 6*d.*, balance alleged to be due by the defendant, Dr. John Graham, of Westmoreland-street, in this city, on foot of a building contract, and for 12*l.* for extra work in the construction of a drug-store and photograph-gallery at the rear of the defendant's premises, according to the plan of Mr. Briggs, architect. The defendant traversed the cause of the action, and pleaded various matters in the way of defence and set-off. He sued for 1,300*l.* as a counter-claim, on the ground that the work was badly done, which necessitated the taking down of the building and its reconstruction. The jury found for the defendant that there was nothing due to the plaintiff on the original contract, and they found that the plaintiff on the counter-claim was entitled to 13*l.* 1*s.*

COMPETITIONS.

Newtown Church, Exeter.—The Exeter Church Extension Society have selected Mr. R. Medley Fulford, of Exeter, as architect for the proposed church in Newtown. Seven sets of designs were sent in under motto by the Exeter architects to whom the competition was confined, and they were all submitted to Mr. Robson, architect of London, who reported in favour of Mr. Fulford's design, bearing the motto of "Laus Deo," as worthy of the first place, and that of Mr. Webb, second. It is proposed to proceed with a portion of the work, if funds will not admit of the whole being carried out at present. The church is to be erected behind the Board Schools, at an estimated cost of about 6,000*l.*, and will accommodate 800 adults.

Books.

The Irrigation Works of India, and their Financial Results. By Robert B. Buckley, Associate-Member of the Institution of Civil Engineers, Member of the Institute of Mechanical Engineers, Executive Engineer of the Public Works Department of India. London: W. H. Allen & Co. 1880.

Great difficulty exists in obtaining any reliable information as to the irrigation works of India. It is not easy even for the professional men who are engaged in these undertakings in one part of that vast continent to ascertain what is being done in other parts of India. Still less is it easy for the English student to do so. There is thus ample room for such a work as that of Mr. Buckley, which is a compilation from all accessible sources of information on the subject, consisting principally in Government reports and Parliamentary papers.

Down to the year 1854, all public works executed in India, except railways, were carried on by the Engineer department of the Army, under the superintendence of a military board. The expenditure was treated as a part of the ordinary current expenses of the year, and no distinction was made as to "capital," or productive and non-productive works. It is thus almost impossible to ascertain the financial outcome of these earlier works. Some of the most magnificent, and some of the most lucrative of the irrigation works of India were commenced under this system. Such were a part of the Ganges canal, commenced in 1847; the West Jumna canal, in 1817; the Cauvery Delta works, in 1834; those of the Godaveri, in 1844; and those of the Kistna in 1852.

In 1858, when the construction of railways, on the guarantee and under the supervision of the State, was in full activity, great pressure was brought to bear upon the Government of India, in order to induce it to promote irrigation by the same method of raising capital. The Madras Irrigation Company was then formed, with a Government guarantee of five per cent. upon a capital of one million pounds. A few years after a private company undertook, without any guarantee, the construction of a system of canals in Orissa. Both these attempts proved to be costly failures. The Orissa Company, formed under the title of the East India Irrigation Company, became practically bankrupt, and the works were purchased by the Government at a price far above their market-value. The Madras Company has only succeeded for one year in meeting its working expenses out of its revenue. It is still at work under the Government guarantee.

From 1867 to 1878, inclusive, while the sum of 18,600,000*l.* has been spent on State Railways, and 14,500,000*l.* on famine relief, less than 10,600,000*l.* has been spent on Irrigation works. The total outlay on works of this nature, up to the last return, was hard upon 17,000,000*l.*, including the outlay of the Madras Irrigation Company. The aggregate net gain, after paying not only working expenses, but 4½ per cent. interest on capital, was 85,500*l.* But the interest thus earned amounted to 700,000*l.*; and the working expenses distributed no less than 396,000*l.* per annum in the payment of labour and materials. Again, where the direct receipts of land revenue from irrigation works amounts to 680,000*l.*, the indirect increase of land revenue due to such works amounted to upwards of 700,000*l.* Taking good and bad together, therefore, India has been largely benefited by the expenditure on irrigation, while the benefit to the Government, in money, has been perceptibly larger than would have been the return of an equal sum of money if invested in English railways.

The irrigation works of India are divided into six groups, corresponding with the provinces in which they are situated. These are:—

1. The Madras irrigation works.
2. The Bombay irrigation works.
3. The Sind irrigation works.
4. The Bengal irrigation works.
5. The North-West Provinces irrigation works.
6. The Punjab irrigation works.

These comprise all the important works of India. There are others of less magnitude, chiefly tank works in Mysore, Rajpootana, and British Burmah, as to which available information is yet wanting.

The works thus locally distributed are divided as to their hydraulic character into five great classes. These are:—

1. Perennial canals, which draw their supplies from rivers that provide the requisite quantity of water throughout the year. These may almost be called derived rivers.

2. Intermittent canals, which draw their supplies from rivers of variable volume, which is stored, and rendered constantly available for the canals by means of reservoirs found in the basins of the rivers.

3. Chronic canals, which have a supply only during the rainy season.

4. Inundation canals, which draw the supplies from rivers having a constant discharge of more or less magnitude, but which are so constructed that the water only enters the canals when the rivers are in flood.

5. Tanks, or works which impound a supply from rivers with small catchment areas, or collect a supply by means of embankments thrown across valleys or gorges.

Of these works, all of the first class, the perennial canals, with but one or two exceptions, have been constructed by the British Government. Works of the last two classes, on the other hand, were largely constructed by the native princes of India before the English obtained possession of the country. They are to be found, on all scales, in almost all parts of India. The great Chembrambankum tank, in Madras, covers an area of nine square miles. In the Punjab and in the Sind are found inundation canals of from 200 ft. to 300 ft. in width. The account given by Mr. Buckley divides the works, in the first instance, according to the six provinces, and then shows to which of the above five classes each canal belongs.

A table is annexed to the first chapter, showing the rainfall in the twenty-two different tracts of country into which India is meteorologically divided. The annual fall ranges from 9 in., in Sind and Cutch, to 193 in. in Arakan.

This enormous variation is alone enough to show, not only the extreme importance of the subject of irrigation, but the wide difference of the methods which the engineer is at liberty to dispose, for that purpose, in different districts.

For any detailed description of the various groups of works, we must refer the reader to the volume itself. So large is the subject, that Mr. Buckley has been limited in the scale on which he treats it by the 200 pages of his volume. He refers to the special accounts which have been given of various works for the guidance of those who wish to enter into minute particulars. On one point it would have added to the value of the work if the author had been less reticent. Speaking of the Ganges Canal, into which water was admitted in April, 1854, he says, "During the next few years defects in the works gradually came to light which it is unnecessary here to recapitulate in detail. The chief defect was excessive declivity in the bed of the main channel, which caused a velocity of current greater than the sandy soil was calculated to withstand without erosion." As the original estimate, on the designs of Sir Proby Cautley, in 1841, for main canals and branches, amounted to 722,640*l.*, while the actual expenditure, up to the end of 1877-78, was 3,055,015*l.*, it is evident that this is a work into the plans and execution of which it would be highly instructive for the student of the subject of irrigation to enter fully and closely. It is only fair to the reputation of Sir Proby Cautley to cite, on this point, the evidence of the translator of Herr Kutter, who is now recognised as the first European authority on hydraulic formulæ. "Colonel Cautley," writes Mr. Jackson, in his preface to the translation of Kutter's formulæ, "relied upon Dubuat when he laid out the Ganges Canal, and found him but a rotten reed, for the water in every instance tore along at an unexpected velocity, and erosion of the bed and destruction of the works followed in its wake. Dubuat, then, must be put upon the top shelf of the book-case, and it will be just as well, when the steps are taken, to carry up every English work in which the names of Brunning, Girard, Bossut, Prony, Eytelwein, or D'Aubuisson are continually recurring as authorities against whom no action can be taken. In this general clearance Beardman, Downing, Box, and almost every other hydraulic text-book compiled by Englishmen, will, with more or less hesitation, have been shelved, and the young engineer will then be able to form a fair estimate of the contributions his countrymen have made to the common fund of knowledge concerning the laws which govern the flow of water."

Of the modern successful irrigation works of India, the most remarkable is that of the Cauvery Delta, designed by Sir Arthur Cotton, in 1834. This work consisted in a weir of 1,950 ft. in length across the Coleroon, a branch of the Cauvery, and in derived canals and subsidiary works. The sum of 134,000*l.* was expended on the works; and in 1875-6 the revenue, after paying working expenses, yielded a return of 85·8 per cent. on this sum. It will be difficult to find a parallel to this, as a financial operation. But the Godavery works, in the same year, yielded 16·94 per cent.; the West Jumna, 24·92; the East Jumna, 25·18; and the Scinde irrigation works, 24·16 per cent., on their respective capitals, after payment of working expenses. It must be remembered that the physical conditions which allow of such advantageous operations are very rare, and that even in some of these, advantage has been taken of works effected by some of the former rulers of India. But the irregularity of financial result is only a proof of the extreme importance of an accurate knowledge of the subject. It is as a first step towards this, and as a guide to the sources of more minute and detailed information, that we cordially recommend the modest and impartial work of Mr. Buckley to our readers.

Old French Plate; with Tables of the Paris Date-letters, and Fac-similes of other Marks. By WILFRED J. CRIPPS, M.A. London: John Murray. 1880.

COLLECTORS of old French plate and students of the history of metal-working have reason to be grateful to Mr. Cripps. For the first time in any language, so far as we know, here are brought together fac-similes of so many of the marks used by makers and the official bodies who had control over the manufacture of plate in France, that the student may "fix the date of almost every specimen of old plate made in Paris," and ascertain the origin of a good deal of the old provincial French plate that he has an opportunity of examining. The historical chapter preceding the tables of marks is carefully compiled, and very interesting.

Miscellanea.

Association of Municipal and Sanitary Engineers.—The Lancashire and Cheshire District meeting of this Association was held on the 5th inst., when the members to the number of about forty visited the Salford new sewage works at Mode-wheel, Weaste, and the Manchester Corporation night soil works at Holt Town. The members of the Association were met at Weaste by Mr. Arthur Jacob, the borough engineer of Salford, who, before conducting the party over the works, entered into a brief description of the development of the sewerage system of Salford, the construction of the intercepting sewer from Broughton to Mode-wheel, and the nature of the works which are now being constructed at the latter place for dealing with the sewage of the borough before allowing it to pass into the river Irwell. The sewage, when the works are completed, will be delivered into pumping wells constructed near the outlet of the intercepting sewer, and from these it will be raised by a pair of powerful pumping engines into a mixing-house, where it will be thoroughly mixed with lime and other chemical ingredients; it will be conveyed by a couple of cast-iron mains into a series of concrete tanks where it will undergo a process of precipitation. These tanks are twelve in number in two parallel lines, and the sewage which is delivered into the tank, the furthest from the pumping station, in the process of precipitation, flows back towards the mixing-house, where the clarified effluent water, before passing into the river, will drive a pair of vortex-wheels which will actuate the machinery in the mixing-house. The precipitated material from the sewage is afterwards conveyed from the tanks into adjoining mud-pits, where it was allowed to dry. The works, which had been considerably delayed by the discovery of a peat-moss under the foundations of the tanks, have been in course of construction for about two years, and it is expected they will be completed in another twelve months. The precipitating tanks are 113 ft. long, with an average width of 78 ft., and a total area of 102,857 square feet. The works were originally designed by Mr. Fowler, the late borough engineer, but have undergone considerable modification, and are now being carried out under the supervision of Mr. Jacob.

Unsanitary Dwellings in Holborn.—Last week, at the Guildhall, before Alderman Sir Thos. Gabriel and Mr. Alderman Nottage, several adjourned summonses were heard concerning the unsanitary condition of certain houses in Ely-court, Holborn. The summonses were issued at the instance of Dr. W. Sedgwick Saunders, the medical officer of health for the City, on behalf of the Commissioners of Sewers, against the freeholders, leaseholders, and occupiers of eight houses in the court, to show cause why they should not be pulled down, as they were in such an unwholesome state as to be totally unfit for human habitation. Dr. Saunders, Dr. Sparks, and Inspectors Payne, Clark, and Saltmarsh gave evidence. Eventually Alderman Sir T. Gabriel said that he and Mr. Alderman Nottage were of opinion that the houses were permanently unwholesome, and that nothing short of pulling them down would meet the requirements of the case. Mr. Bartlett, on behalf of Messrs. Goathead, the trustees of the freeholders of Nos. 8, 9, 10, and 12, said that if Mr. Newby, the lessee, would give up the houses he would forgive him the rent he owed, and would pay the expenses in the action of ejectment which was now pending. Mr. Pontifex, on behalf of Captain Meeking, made a similar offer with regard to their interests in the property. Alderman Sir T. Gabriel, after a long discussion, adjourned the summonses relating to No. 7 *sine die*; that relating to No. 11 to January 7th; and with respect to Nos. 8, 9, 10, and 12, made an order that these should be pulled down within six weeks.

Handbook to the Builders' Supply Stores. The Builders' Supply Stores (145, Holborn-bars) have been established nearly a quarter of a century, so that their usefulness would seem to be proved. The handbook now issued gives particulars and trade prices of materials and fittings kept in stock, or supplied by associated firms.

Everton House.—Colonel Trevor Goff, late of the Highlanders, having acquired a considerable tract of land in the neighbourhood of Everton, near Lymington, resolved, some little time ago, to build himself a mansion there. Mr. George R. Crickmay, of Parliament-street, Westminster, and of Weymouth, was consulted, with the result that an edifice has been erected. The style of architecture is a free rendering of the Elizabethan style of domestic architecture. It is built of red brick, with Bath stone dressings. Red tiles are also utilised in the walls, whilst the gables are of half-timbered work. The roofs are of high pitch, and covered in with red tiles, and the chimneys are carried well up, breaking the sky-line picturesquely, and intermingling with the varied gable lines and general grouping. The cornices from which the roofs spring are deeply coved out in plaster, and bear upon their faces ornamental stucco-work of *sgraffito* character. The building rests upon a Portland stone plinth. On the front of the house towards the sea there is an open colonnade, supported by carved cantilever, and carried by an arcade of cut and moulded brick, which rest in their turn upon columns of polished red Aberdeen granite, with carved annulets, and carrying carved capitals. The whole of the ornamental carved work has been executed by Mr. Harry Hems. The contractor for the whole of the works is Mr. A. H. Preen, of Blandford.

Fittings for Trinidad Government Buildings. — The Crown Agents for the Colonies have recently directed some important decorations to be executed in the residence of the Governor, and amongst the new fittings which they have ordered to be supplied are some elegant chandeliers and brackets, also globe lights, especially prepared for the various rooms and corridors. The manufacture of these excellent specimens of modern art has been entrusted to Messrs. Henry Greene & Son, of Cannon-street, London Bridge, at whose establishment they have been displayed for a few days previously to their being shipped to their destination. The principal chandelier is very handsome, being a combination of ormolu with richly-cut crystal jewels set in the scrolls of the arms, the central body whence these scrolls spring being formed in massive metal work of very rich character, having ornamental crystal glass vases introduced into the stem of the chandelier, the whole being finished with pendent drops of the early Venetian style. There are smaller chandeliers *en suite* for the public and private drawing-rooms, dining-rooms, &c., the whole forming an exhibition very creditable to Messrs. Greene. Mr. Edmeston is the architect of the buildings.

Institution of Civil Engineers.—A list of subjects on which original communications are invited has been issued. It directs attention to the various trust funds, the interest on which provides the means of rewarding meritorious papers. The annual income derived from this source now reaches nearly 450*l.*, the whole of which is available for the purposes named, and with the exception of the Miller Fund and the Howard Bequest (which are restricted by the donors to particular objects) any person, whether connected with the Institution or not, native or foreigner, may compete. The students of the Institution are further eligible for the receipt of Miller scholarships and prizes for papers read at the supplemental meetings specially held for that class. The meetings were resumed on Tuesday, the 9th inst., when a paper by Mr. B. Walker, of Leeds, was read, treating of "Machinery for Steel-making by the Bessemer and the Siemens Processes." At the following meeting Mr. Seyrig, of Paris, will present a communication on "The Erection of Metallic Bridges."

Small Savings by Postage-Stamps.—From and after Monday, the 15th inst., at every Post-office in the United Kingdom, forms for the making of small deposits in Post-office Savings-Banks will be issued gratuitously. Each of these forms, which are about the size of an ordinary cheque, will have twelve divisions, in each of which a penny postage-stamp can be placed. When a form has thus been filled with twelve stamps, it will be received at any Post-office at which there is a savings-bank, as a deposit of a shilling. During the seven weeks that the experiment has been in operation in ten counties only, more than 14,000 of these forms have been received, and more than 7,000 new accounts have been opened through their agency. The arrangement promises to encourage thrift.

Improvements in the City, and Value of Property.—It has been some years in contemplation to form a new street leading from Monument-yard in a south-easterly direction into Lower Thames-street, coming out opposite Billingsgate Market. The first instalment of this new road is now in course of formation, the purchase of a large warehouse situate at the corner of Monument-yard and Pudding-lane having been arranged between the Commissioners of Sewers and the Governors of Christ's Hospital, the freeholders of the property. The warehouse occupied about 3,480 superficial feet, and the price arranged between Mr. Haywood on behalf of the City and Mr. H. S. Legg on behalf of Christ's Hospital,—viz., 24,000*l.*,—has now been paid. A new roadway, therefore, is being formed on each side of the Monument, which joins at the back (eastwards), and then leads into Pudding-lane, occupying the site of the warehouse just mentioned, where, for the present, it will stop until funds are forthcoming to carry it on.

Accidents in Building.—On the 4th inst. Mr. St. Clare Bedford held an inquest at Charing-cross Hospital, as to the death of Henry Laurence Groom, aged 22. The deceased, a bricklayer's pointer, on the afternoon of the 1st inst. was standing on the end of a scaffold some 50 ft. high outside a building in course of repair in Old Compton-street, Soho, when he missed his footing and, falling to the ground, received injuries which resulted in his death soon afterwards. The foreman of the works, in reply to the Coroner, said that it was not usual to place pieces of timber to act as barriers at either end of the scaffold, although it could be done. The Coroner observed that the number of deaths from this cause was very great, and builders should take care to insure the lives of their workmen. The jury, in returning a verdict of "Accidental death," added that in future precautions should be adopted in order to prevent the lamentable loss of life so prevalent in building operations.

Albert Hall.—Arrangements have been made for the tenth season of the Royal Albert Hall Choral Society, under Mr. Barnby. The season was commenced on Thursday, the 11th of November, with a performance of Handel's "Judas Maccabæus," when the usual orchestra of 100 members was increased by the band of the Coldstream Guards. A grand performance of Mendelssohn's "Elijah" will be given on Thursday, the 2nd of December. Professor Macfarren's Oratorio, "St. John the Baptist," has been included in the programme, and arrangements are pending for a grand performance of Dr. Sullivan's new Cantata, "The Martyr of Antioch."

The Water Question.—At the Lambeth Vestry, Mr. W. T. Wiseman has given notice of a motion for discussion on the 18th inst., declaring further and immediate legislation is necessary respecting the supply of water to the metropolis and suburbs; that a special or royal commission should be forthwith appointed to inquire into and report upon the present and other available sources of supply; and that no legislation will be deemed satisfactory by the ratepayers and water-consumers, unless it secures pure, full, and constant supply.

A Window for St. Alban's Abbey.—At a meeting of the Common Council last week, on the motion of Mr. Thomas Bedford, it was decided, "That this Court having resolved to restore the great east window in the lady-chapel of St. Alban's Abbey, and being desirous that the said window should be in every way worthy of the Corporation and of the magnificent building in which it is placed, agrees to fill the same with stained glass in the highest style of art, at an expense not exceeding 280*l.*"

Value of Land in the City.—The report of the special committee appointed by the members of Lloyd's to obtain the terms upon which the land situated at the north-west corner of the present site of Leadenhall-market might be purchased, states that the City Lands Committee declined the offer of 7*l.* 10*s.* per square foot for the area (about 33,000 ft.), equivalent to a total of about 247,000*l.* The City Lands Committee estimate the value of the land at about 350,000*l.*

London and Middlesex Archæological Society.—The Session for 1880-1 will commence on the 15th inst., when a paper will be read by the Rev. F. C. Cass, M.A., "On the Battle of Barnet." The evening meetings will be continued from November to May, at 4, St. Martin's-place.

Builders' Benevolent Institution.—The thirty-third anniversary festival of this Institution was held at the Freemasons' Tavern on Thursday evening, Mr. Thomas F. Rider, president, in the chair. The gathering was a very successful one. Upwards of 250 of the friends of the charity sat down to dinner, and the subscriptions and donations announced reached the handsome total of 1,014*l.* 16*s.*, of which sum the President's list (including 52*l.* 10*s.* from himself and 52*l.* 10*s.* from Mrs. Rider) accounted for 662*l.* 18*s.* We shall give a report of the proceedings next week.

Design for Battersea Bridge.—At a meeting of the Chelsea Vestry, on the 9th, it was moved by Mr. Wheeler:—"That this Vestry is of opinion that the preparation of the design of the new Battersea Bridge should not be confined to the officers of the Metropolitan Board, but should be submitted to public competition, and that a copy of this resolution be forwarded to the Metropolitan Board of Works." The motion was, however, negatived.

Angle, Bulb, and Tee Iron.—Messrs. G. Bailey Toms & Co., of Laurence Pountney-hill, have issued an amended list of sizes of joist, channel, angle, tee, and fancy iron, which contains almost every section manufactured, comprising as it does between 1,200 and 1,300 sizes. It will be found of value to builders, engineers, and shipbuilders, when designing work, because it shows at a glance whether any section decided on is rolled or not.

Mr. Norton, of Old Bond-street, has been appointed Consulting Surveyor to the National Thrift Building Society, who have commenced business at 33, New Bridge-street, with a strong direction. The Society advertise a prize essay competition on "National Thrift," with prizes for the three best essays.

Royal Scottish Academy.—On Wednesday, at a meeting of the Royal Scottish Academy, held in Edinburgh, Mr. R. P. Bell and Mr. George Aikman were elected Associates of the Academy.

Balusters and Newels.—Messrs. Eberhard & Co., of Edward-street, Hampstead-road, have issued a new illustrated sheet of balusters, newels, and handrails, of superior design, and at prices that will compete with foreign manufactures.

Selwyn College.—It is stated that through the liberality of two donors, the building of the first block of Selwyn College, to accommodate sixty students, will soon be commenced.

TENDERS

For alterations and additions to West Hill Schools, Hednesford, for the Cannock School Board. Mr. B. Baker, architect, Willenhall. Quantities by the architect:—

Butler, Darlaston	£2,379	10	0
Tildesley, Willenhall	2,190	0	0
Punfield, Willenhall	2,173	0	0
Watton & Sons, Tamworth	2,163	16	8
Whittome, Stafford	2,149	0	0
Lovatt, Wolverhampton	2,100	0	0
Jones & Sons, Sedgley	2,095	0	0
Grosvenor, Stafford	2,070	0	0
Bedford, Wolverhampton	2,050	0	0
Bennett, Birmingham	2,033	0	0
Bradney & Co., Wolverhampton	1,995	0	0
Barton, Hednesford	1,994	0	0
Teese, Darlaston	1,927	0	0
Guest, Stourbridge (accepted)	1,825	0	0
Tracey, Stafford	1,801	0	0

For additions to premises, Love-lane, City. Messrs. Ford & Hesketh, architects:—

Simpson & Son	£22,891	0	0
Colls & Sons	20,604	0	0
Scrivener & Co.	20,535	0	0
Kirk & Randall	20,467	0	0
McLachlan & Sons	20,249	0	0
Shaw	20,243	0	0
Perry & Co.	20,182	0	0
Adamson & Sons	19,988	0	0
Peto Bros.	19,767	0	0
Brass	19,531	0	0
Conder	19,390	0	0
Lawrance	18,896	0	0

For rebuilding Park House and offices, Reading. Messrs. Cooper, Son, & Miller, architects. Quantities supplied:—

Winser	£5,099	0	0
Dodd	4,990	0	0
Simmonds	4,989	0	0
Woodbridge	4,966	0	0
Shepherd	4,953	0	0
Simmins	4,940	0	0
Chapell	4,900	0	0
Elliott	4,888	0	0
Lovell	4,780	0	0
Claridge	4,589	0	0
Higgs	4,440	0	0
McLachlan & Sons	4,430	0	0

For alterations to Weavers' Arms public-house, London Wall, for Mr. Sheen. Messrs. Drury & Lovejoy, architects:—

Hockley	£449	0	0
Marr	408	0	0
Shurmur (accepted)	396	0	0

For the erection of residence, Streatham Park, Surrey, for Mr. W. L. Hooper. Messrs. Osborn & Russell, architects:—

Bowyer	£2,595	0	0
Brown	2,569	0	0
Wontner Smith & Co.	2,479	0	0
Woodward	2,404	0	0
Jarrett	2,396	0	0
Tongue	2,380	0	0
Sabey & Son	2,329	0	0
Barnes	2,300	0	0
Jerrard	2,298	0	0

For two cottages at Upton, Essex. Mr. J. Moore Smith, architect:—

Waterman	£639	0	0
Webb	579	0	0
North Bros.	565	0	0
Baxter	547	0	0
Martin	539	0	0
Brown, Stratford (accepted)	525	0	0

For repairs, decorations, &c., at 16, Hyde Park-square. Messrs. Joseph & Pearson, architects. No quantities supplied:—

Hackforth	£1,500	0	0
Hearn	1,296	0	0
McLachlan & Sons	1,048	0	0

For the erection of new public offices, assembly-room, and surveyor's residence, Brownhills, near Walsall, for the Brownhills Local Board. Mr. J. Siddalls, architect. Quantities supplied by the architect:—
T. & E. Cresswell, Walsall Wood (accepted) £2,700.

For the erection of houses at Stanley-road, Harringay New Park, Green-lanes, for Mr. G. Barter. Mr. Seckham Witherington, architect:—

Five Houses.

Whale	£2,335	0	0 !
Taylor & Parfitt	1,990	0	0
Partridge & Henderson	1,545	0	0
Coney, Liverpool-road	1,490	0	0 !

Ten Houses.

Whale	4,640	0	0
Taylor & Parfitt	3,780	0	0
Partridge & Henderson	3,000	0	0
Coney	2,940	0	0

For a warehouse, Lansdowne-place, Whitecross-street, for Mr. Hudson. Messrs. Gordon & Lowther, architects. Quantities provided:—

Sangster	£1,874	0	0
Wilson	1,850	0	0
Taylor & Parfitt	1,619	0	0
Nixon	1,587	0	0
Dye	1,488	0	0
Trill	1,475	0	0
Little	1,238	0	0

For alterations to White Hart public-house, Hoxton-street, for Mr. E. J. Rose. Messrs. Wilson, Son, & Aldwinckle, architects:—

Marr	£1,795	0	0
Hearle	1,775	0	0
Cocks	1,770	0	0
Andrews	1,757	0	0
Shurmur (accepted)	1,638	0	0
Palmer	1,497	0	0

For the erection of stables, Mallwood House, Balham-hill, for Mr. S. W. Cawston. Quantities supplied. Mr. A. Cawston, architect:—

Rider	£1,040	0	0
Carter	955	0	0
R. & E. Smith	875	0	0
Macey	866	0	0
Garrod	850	0	0
Bowyer	797	0	0

For the restoration of Llantrissant Church, Monmouthshire. Mr. E. A. Lansdowne, architect:—

Howard, Cardiff	£680	0	0
Jones & Son, Newport	547	0	0
Linton, Newport	520	0	0
Richards, Newport	490	0	0
White, Abergavenny	488	0	0
Burgoyne, Blaenavon	475	0	0
Morgan & Evans, Pontypool	459	0	0
Giles, Pontrilas	455	0	0
Blackburne, Newport	433	0	0

For new schoolroom and choir vestry, Christ Church, Watney-street. Mr. C. Peters, architect:—

Parish	£833	0	0
Page	730	0	0
Forest	637	0	0
Moyle & Son (accepted)	540	0	0

For repairs, alterations, and extension of shop-fronts, No. 1, New Cut, for Messrs. Cartwright & Sons. Mr. F. Harger, architect:—

Downing	£420	0	0
Smith	397	0	0
Campbell	380	0	0
Edmunds	372	0	0
Mills	360	0	0
Farr & Co. (accepted)	340	0	0

For building additional cells at the Head-Quarters Police Station, Aylesbury, and alterations to the Deputy-Chief Constable's residence, for her Majesty's Justices of the Peace. Mr. W. F. Taylor, surveyor. Quantities supplied:—

W. Y. Green	£407	9	11
Thos. Green	389	4	0
Mayne & Son	364	0	0
Cooper* (accepted)	349	17	0

* Extra for additional height of cells, as required by the Secretary of State, 40*l.* 3*s.*

For cleansing and restoring the mural monuments, St. Stephen's Church, Walbrook. Mr. T. Milbourn, surveyor:—

Mitchell	£168	0	0
Forsyth	100	0	0
Wilkins & Son (accepted)	95	0	0

For cleansing and repairing organ:—

Hill & Son (accepted)	£25	0	0

For foundations, &c., of proposed new building, Thames Embankment, for Mr. S. Parry. Messrs. Fowler & Hill, architects :—

Kellett & Bentley	£3,680 0 0
Killingback	3,596 0 0
Batch	3,354 0 0
Cooke	2,700 0 0
Dickinson	2,688 0 0
Crockett	2,558 0 0
Kirk & Randall	2,519 0 0
Reddin	2,460 0 0
Bell	2,354 0 0
Ford & Co.	2,339 0 0
Prout	2,195 0 0
Cardus (accepted)	1,979 0 0

For making up Highbury Quadrant, for the Vestry of St. Mary, Islington :—

Williamson	£1,250 0 0
Rutty	1,050 0 0
Walker	985 0 0
Jackson & Son	945 0 0
Irons	913 0 0
Bell, Wood-green (accepted)	737 0 0

For the erection of a villa residence at Lower Norwood, for Mr. J. Shrewsbury. Mr. J. S. Shrewsbury, architect. Quantities supplied :—

Woodbridge	£989 0 0
Goad	965 0 0
Silver	940 0 0
Crabb & Son	933 10 0
Jenkins	925 0 0
Bowyer	877 0 0
Pack Bros.	849 0 0
Taylor (accepted)	846 0 0

For new dormitory, &c., Ealing House Girls' Industrial Home, for Mr. Wm. Williams and the Committee. Mr. E. P. Loftus Brock, architect :—

Grover (accepted in part)	£1,195 0 0

For additions and alterations to No. 87, Tottenham-court-road, for Messrs. Menegilli & Co. Mr. C. Sewell, architect :—

Bolding & Son	£849 0 0
Stimpson & Co.	848 0 0
Pack Bros.	716 0 0
Neighbour & Scott	617 0 0

For alterations and additions to Almshouses at Bayham-street, Camden Town. Mr. Henry Jacques, architect. Quantities supplied :—

Shaw	£5,859 0 0
Mowlem & Co.	5,714 0 0
Manley	5,557 0 0
Laing & Son	5,435 0 0
Rider & Son	5,380 0 0
Howard & Dorrell	5,280 0 0
Dove Bros.	5,155 0 0
Adamson	4,975 0 0
Wall	4,950 0 0
Clemence	4,947 0 0
Toms (accepted)	4,459 0 0

For alterations and repairs to Nos. 20 and 21, Harp-lane, Tower-street, City, for Mr. Kuck. Mr. E. Hide, architect :—

	Alterations and repairs.	Extra room.
Beckey	£987 0 0	£125 0 0
Austen	810 0 0	90 0 0
Julian	735 0 0	55 0 0
Rickes	694 10 0	—
Cass & Beldon	610 0 0	—
Angood	593 0 0	51 0 0
Derby	575 0 0	30 0 0
Elwes	569 10 0	75 0 0
Kemp	550 0 0	75 0 0
Ward & Lamble*	509 0 0	75 0 0
Radley	430 0 0	25 0 0

* Accepted.

For the erection of a granary, &c., High-street, Brentford, for Messrs. Jupp & Sons. Messrs. Smithies & Gladman, architects :—

Adamson & Sons	£995 0 0
Nye	995 0 0
Beauchamp	975 0 0
Brunsden	900 0 0

For extension of premises, 152, High-street, Camden Town, for Mr. Cates :—

Gould & Brand (accepted).

For the erection of public baths, Richmond, Surrey. Messrs. Geo. Elkington & Sons, architects :—

Contract No. 1.—Builder's Works.

Perry & Co.	£7,280 0 0
Crockett	7,223 0 0
T. & F. Drake	6,995 0 0
Reynolds & Co.	6,950 0 0
Prout	6 797 0 0
Higgs	6,750 0 0
Julian & Co.	6,650 0 0
J. & C. Bowyer	6,478 0 0
Priestly	6,447 0 0
Sweet & Loder	6,346 0 0
Osborne	6,327 0 0
Angood	6,300 0 0
Battley	6,273 0 0
Beale	6,090 0 0
Watson	5,880 0 0
Pack Bros.	5,599 0 0
Bull Bros. & Cooper	5,493 0 0
Lucas	4,228 5 3

Contract No. 2.—Engineering Works.

Clarke	£2,068 0 0
Fraser & Fraser	1,872 0 0
Benham & Sons	1,735 0 0
Rosser & Russell	1,699 0 0
Reynolds & Co.	1,600 0 0
Fraser & Co.	1,589 0 0
J. & F. May	1,550 0 0
Goddard & Massey	1,494 0 0
Hamilton, Wood, & Co.	1,388 0 0
T. Bradford & Co.	1,369 0 0
Chadderton Ironworks Company	1,159 0 0

For erecting warehouse and stabling on Chester Wharf, Redhill-street, Regent's Park, for Messrs. Turner & Byrne. Mr. Wm. Woodward, architect. Quantities supplied :—

Boyce	£3,180 0 0
Blyth	2,090 0 0
Cooper	1,898 0 0
Gritton	1,890 0 0
Bywater	1,879 0 0
Stanley Bird	1,869 0 0

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